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ABSTRACT

This book concerns the Mt. Druitt Early Childhood Project, which was developed to provide quality educational programs for disadvantaged children living in the western suburbs of Sydney, Australia. In order to set the subsequent discussion in broader perspective, chapter 1 addresses several key issues influencing project development. Chapter 2 reviews the project's developmental phase; outlines project goals; and specifies what the goals meant for children, teachers, and parents. Chapter 3 describes the Mt. Druitt area, a new low-cost public housing estate. Summarized in chapter 4 are objectives and general methods followed in each of five different early childhood programs (cognitive, competency, contemporary, behaviorist, and home-based). Additionally, general issues in preschool programming are considered, and childhood practices in Australia that influenced program selection are reviewed. Chapter 5 describes the program evaluation model and presents demographic, medical, nutritional, cognitive, language, and achievement data about children in the preschool and comparison groups at the beginning of 1977. Chapter 6 describes and quantifies many of the processes that occurred within classrooms and evaluates these processes against the goals of the project. Chapter 7 describes initiatives taken to achieve the goal of parental and community involvement with schools. Overall results of the study are presented extensively in chapter 8, and other results are discussed in chapter 9. Implications of the main results are considered in chapter 10. (RH)

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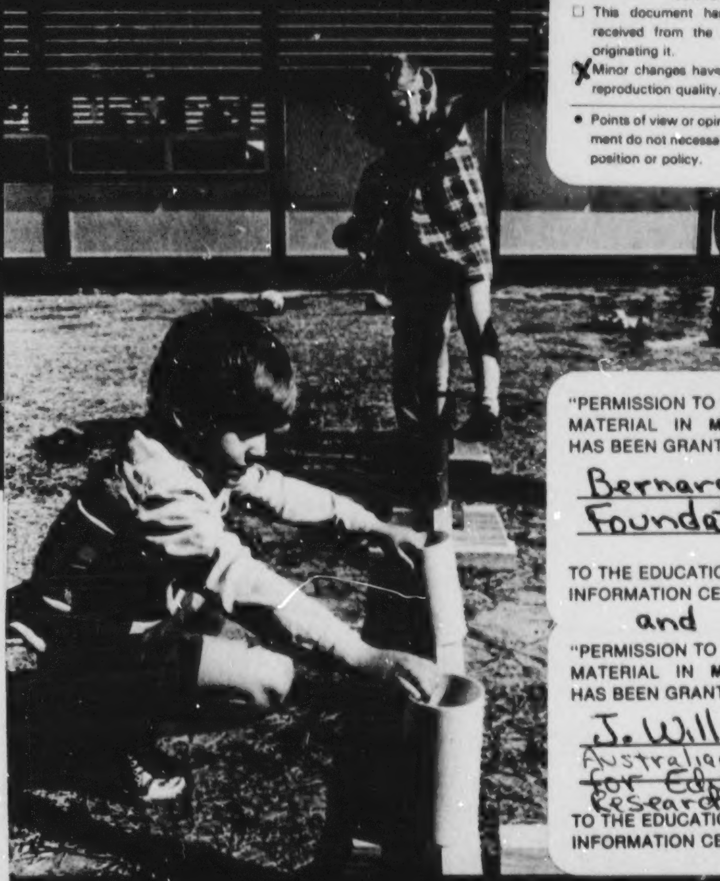

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Explorations in Early Childhood Education

The Mount Druitt Early Childhood Project

John Braithwaite

With the assistance of
Jim Alexander
Jilliam Belme
Anne Clark
Anne Grey
Muriel Healey
John Metham

Australian Council for Educational Research
for the
Bernard van Leer Foundation

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Foreword

This is the first major report on the Mt Druitt Early Childhood Project. It has been written by Dr R. J. Braithwaite who was the Field Director of the Project from its inception in 1975 until its completion in 1979. Much of the credit for the many successes described in this book must go to the professional skills, energy and enthusiasm of John Braithwaite and the staff of program and research assistants working with him. The Project was above all highly innovative, and not least of the achievements of the team was their capacity not only to maintain their own creativitiy and enthusiasm but also to inspire and excite principals and teachers of the schools of Mt Druitt over such a long period.

A little must be said about the genesis of the project, the vicissitudes of its early years, the objectives that were aimed for and, finally, its achievements. The report given in the book is restricted, very properly, to a sober account of the program as Dr Braithwaite guided its development, and he claims no more than can be supported by rigorous statistical analyses. Not until his final chapter does he allow himself a little speculation and a measure of personal assessment of outcomes other than those supported by his formal analyses. As the overall Director, however, and as such responsible for policy and not for detail, perhaps I may be permitted to wander a little further to make claims that seem to me and to others (often including Braithwaite) to be justified by 'feel', and by impressions emerging from conversations with parents and teachers, from unstructured irregular observation of classrooms and above all from chattering with the children.

The Project had its genesis in 1970-1971, almost with the beginnings of the School of Education at Macquarie University. Some original members of the staff, impressed by the successes of Head Start in the United States and similar programs in the United Kingdom, had seriously stressed the desirability of a major educational project for disadvantaged children in Sydney. We had considered traditional groups such as children living in slums in the cities or Aboriginal youngsters living on reserves on the edge of the country towns. It was not so much that we were a group of academics in search of a project: our concern was that at Macquarie the opportunity had arisen to begin a program which could be of real value to the community and at the same time would give something of a flavour to our new department. Many of us had worked with disadvantaged children in a number of countries, and hoped to bring our skills and knowledge to bear on Australian problems.

At this time, it happened that Dr W.H. Welling, Executive Director of the Bernard van Leer Foundation (BvLF), was visiting Australia in connection with programs of early childhood education which the Foundation had supported in four States of the Commonwealth. He had had some discussions with The Smith Family, the large philanthropic and welfare organization which cares for many disadvantaged people in New South Wales, and expressed an interest in the problems of disadvantaged children living in housing estates on the outskirts of Australian cities.

Following these talks with Dr Welling, we entered into protracted negotiations with the Departments of Education of the Federal and State Governments, the Health Commission of New South Wales and The Smith Family. There is no point in going over the details of these talks, which carried us from elation to despair and back again many times in the ensuing two years. Suffice to say that during 1973 and 1974 we spent a good deal of time in Mt Druitt where Dr W. Coppell of the School of Education had carried out a careful feasibility study and urged on us the need for an early childhood program. We were readily convinced and a formal approach was made to BvLF, whose Trustees made a generous grant. A Steering Committee was established, consisting of representatives of the New South Wales Department of Education, the Health Commission, The Smith Family and Macquarie University with myself as Chairman, representing the Vice-Chancellor. John Braithwaite was appointed Field Director.

And so we began. The story is taken up in the early chapters of this book and there is no point in summarizing Dr Braithwaite's account of what our objectives were and how we set about trying to achieve them.

It is, however, of some importance to say fairly clearly what we were *not* trying to do. A number of people have assumed that the Mt Druitt Early Childhood Project was basically a research program. It was not. It was an action program in early childhood education, although it is true that the design contained some elements of a research character. These included the decision to implement five early childhood education programs each with a different theoretical basis; the careful development of teaching methods and materials specifically related to each curriculum; and above all, elaborate monitoring and evaluation procedures. Nonetheless, the focus was on the quality of effective curriculum and teaching and their outcomes for disadvantaged children. When—as happened on a number of occasions—there was any conflict between the efficiency of a program as it related to children and the efficacy of model research procedures, the decision was invariably in favour of the curriculum, teaching methods or the school organization most beneficial to the children, as against the requirements of a rigorous research design. This should clearly be understood in any interpretation of the outcomes.

What then do I think has come of it all? What have we learned? What have we achieved? I consider the major successes to have been these:

1 Five high-quality preschool programs were established in an area which was believed and proclaimed to be greatly in need of them. The programs were established in the context of the ordinary New South Wales public school system and they are still operating. This was a great achievement in many ways. Despite the admirable accomplishments of the preschool movement in Australia, it has been much hampered (and unfairly criticized) because many of its programs have been almost entirely in private hands, with no real links with the normal school system. Paradoxically enough, the first preschools in New South Wales, founded as they were on Froebel and Montessori, were established for poor children living in depressed conditions; but during the last thirty or forty years, with few exceptions, the traditional preschools have had little contact with 'disadvantaged' children in 'disadvantaged' areas. This task has essentially become one of day-care and has been left to the churches or to child welfare agencies. There has in truth been considerable and often unjustified opposition to the preschools and their teachers, with frequent claims of inadequate training and non-professional standards, and complaints that they cater for the rich and the middle-class whose children are not in need. The Mt Druitt project, if it did nothing else, influenced the acceptance of preschools and their teachers as part of the normal school system. We are still a long way from the goal of 'early childhood education for all on demand', but this Project has brought that goal closer.

2 The principals and teachers in the schools demonstrated flexibility and professional skill in the development of curriculum and teaching

methods in ways and at levels many believed to be beyond them. The book outlines the ways in which the preschools and infants schools went about what was a difficult, creative and challenging task, and points with truth and pride to the quality of the work accomplished. As part of this, the teachers achieved an integration of preschool and infants school curriculum and methods which had never before been accomplished on this scale in schools in Australia. This, too, was a major achievement.

3 There was a convincing demonstration of the fact that teachers will accept and work enthusiastically with untrained aides in the classroom. It would be foolish to claim that this was achieved without storm or stress—there were many problems, but the outcome has been admirable. Similarly, 'parental involvement'—that dreadful phrase—became accepted as a normal part of the life of the school. There were difficulties and there still are, but it is fair to say that school and community in Mt Druitt are more part one of the other than is usual in Australia, where the school fence tends to be a prison wall when viewed from either side.

4 Several of the innovatory programs and many of the methods have been taken over and adapted—often in an improved form—by schools and teachers in other places. An outstanding example is the spread of the Home-based Program which was in many ways the most novel and successful of the preschool initiatives.

5 These were structural outcomes. What of the children? I would not presume to summarize or anticipate Braithwaite who speaks well for himself and his staff. However, there are other inferences I would draw which, in J.S. Bruner's words, 'go beyond the information given'. First, the children enjoyed their preschool, Kindergarten and Year 1 experiences in the project classrooms. They were happy, cheerful, busy little people; one need only visit the classrooms, look at the videotapes, speak to teachers and parents to know that this is true. And Mt Druitt, regrettably, is often not a particularly happy place. The Project gave to these children and their successors worthwhile experiences which would not have been theirs otherwise. I think it is fair to claim that the preschools have met many of the objectives of the people of Mt Druitt, even if they have not always achieved those set by the professional educators.

Secondly, and more technically perhaps, the evidence in this book would suggest that, *in the short term*, preschool and follow-through programs had little effect on school performance in the narrow sense. In the *very* short term—a year or so—there were some positive outcomes, but these, in current jargon, 'washed-out' by the end of

Year 2 or Year 3. This is the usual world-wide experience; but it is worth saying, with the Head Start experts in the United States, that to limit one's assessment of the situation to this is to ignore many outcomes not measured by the usual tests of school achievement. It is also to ignore the real possibility of long-term effects. American, British and European studies are beginning to show that there are 'sleeper effects' on school performance which are not discernible until later in the primary school process. These can only be discovered by detailed longitudinal studies, and the new Mt Druitt Longitudinal Study which will follow the children and comparison groups for some years should provide better answers. This study is also being supported by BvLF, the New South Wales Department of Education, the Australian Schools Commission, the Health Commission and Macquarie University.

However, in the data of this book there are also some interesting academic-type outcomes, which are worthy of comment although they do not always reach statistical significance. The higher scores of the Project children on verbal material is one, the consistently better performance of girls who have had preschool experience is another. These and similar data will require further investigation.

Apart from this, the Mt Druitt Early Childhood Education Project has had two additional effects which are difficult if not impossible to measure, but are real and compelling for all that. The first is the contribution of the Project to the Mt Druitt community. The second is the major store of curriculum materials and methods which have been developed and which are attracting a great deal of attention, not only in Australia, but also internationally. Future volumes concerned with these topics are being planned.

I could go on, but Braithwaite needs no bush and no foreword should ever be longer than the book itself+

There are some debts of gratitude I must pay. Most important is that to the Bernard van Leer Foundation. The Foundation is dedicated to the cause of disadvantaged young children. Its vision and compassion have led it to support almost two hundred projects in the field in over thirty countries, and it is our hope that the knowledge and experience gained in Mt Druitt will be of value to other children, other schools, and other communities in countries different from our own. I know the Foundation will feel amply repaid if this proves to be so.

The New South Wales Department of Education has often been the target of criticism bordering on abuse, for 'rigid, unimaginative, repressive, bureaucratic procedures which are never supportive of creative, imaginative programs. The Department is only interested in adminstration, never in children, teachers or schools'. Our experience at

Mt Druitt has been precisely the reverse of this. Successive Directors-General—Verco, Buggie and Swan, their senior advisers in early childhood education—Harris and Bevan, and Area Directors and Inspectors such as Thompson, Scott, Boyd and Farnsworth, have been totally supportive in the most exemplary professional way. That the Project would never have been begun nor implemented without their support is obvious, but I want to emphasize that this support has been positive, active and continuous. It would be remiss of me, however, not to pay special tribute and gratitude to Audrey Bevan, in part as a member of the Steering Committee, but much more as a guide, philosopher, friend and 'facilitator' with the schools. The Project would have been professionally as well as administratively poorer without her help.

We were fortunate in that the planning years for the project coincided with the determination of a new federal ministry in Canberra to provide welfare and education programs to meet the needs of all Australian people. The splendid vision of what have been called the Whitlam years could not be fulfilled in its entirety, but enough was done and enough remained to change many concepts about Australian society. Among the novel ideas was the notion that child care and early childhood education services were the right of all children everywhere. Government commissions were established to plan and carry out an ambitious program to fulfil this vision. For reasons which cannot be analysed here, these plans were abandoned, but not before an interim program had been approved for the establishment of a number of child-care centres and preschools in various areas in several States. The Commonwealth Department of Education and the Interim Committee of the Children's Commission, thanks largely to the inspiration of Joan Fry and Marie Coleman respectively, agreed to erect and equip appropriate buildings and to pay preschool teachers in some schools in New South Wales. This decision made much of the Mt Druitt project possible and for this too we are most grateful.

I must also pay tribute to the help given us by officers of the New South Wales Health Commission. For reasons detailed in later chapters it proved difficult to achieve our original goals in health and nutrition. Nonetheless, the doctors and nursing sisters in the western area of Sydney and in Mt Druitt itself were helpful and supportive and much of their data threw real light on many of our problems. Perhaps more important, because of their continuing involvement and interest many of the earlier technical difficulties have now been overcome and the Longitudinal Study will contain a substantial and essential contribution from the health authorities which should throw real light on the development of children in a 'disadvantaged' area of New South Wales.

And finally we come to the fourth member of the Steering Committee which sustained and supported the Project—The Smith Family. To them we, like the people of Mt Druitt, owe a special debt. Mr Robert Turner, Executive Director of that organization, made available a great deal of vital data on which to base our early surveys and develop our planning. His interests and assistance and that of the organization have continued. I am not sure, indeed, whether Bob Turner really realizes just how much he and his colleagues helped us in our early thinking, and in getting over the difficult early months in Mt Druitt, and finally in the non-formal evaluation of our work. The Project would have been the poorer without their help.

I have already written too briefly of the professional skills, devotion, loyalty—all the best nouns should go here—of John Braithwaite and the staff of the Project. I cannot speak too warmly of them as people or too highly of them as professionals. This book is in essence a real tribute to their work.

The same must be written of the people in the schools—the principals and the teachers who worked with us. Looking back I wonder at the temerity, the presumption with which we assumed that we would be welcomed in the schools of Mt Druitt. After all, these people were trained, skilled, experienced professionals—who were we to suggest new curricula, new teaching methods and, above all, the introduction of preschool classes which would throw additional responsibility and a great deal of extra work on everyone? The success of the Project suggests that our assumptions were justified, but this justification is a tribute to the principals and the teachers themselves and to the deep concern they possess for the children of Mt Druitt. To them, as participants in what was essentially a partnership, a great deal of credit must be given.

And finally, there are the children and their parents. That it was all undertaken on their behalf is true, but this they were not to know and so to recall the hours of observation, interviewing, testing and examining to which they were subjected to produce the data in this book is to feel humility and a deep sense of gratitude.

Dr Braithwaite makes no world-shattering claims for the Project in his book. It is a straightforward account by a dedicated scholar of a Project which we hope has helped the children of Mt Druitt and may also contribute to our knowledge of effective education for young children everywhere.

Hugh Philp
Professor of Education
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Mt Druitt Early Childhood Project Personnel
1975-1979

Project Director	Professor Hugh Philp
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Members of the Field Committee Mr L. Bennett, Mr R. Blevin, Mr J. Farnsworth, Mr H. Boyd, Miss P. Ginns, Mrs D. Kennedy, Miss B. Raymer (NSW Department of Education), Dr M. Moyes, Dr I. Hasgard (Mt Druitt Polyclinic)

Acknowledgments

It is understandable that, in carrying out all the activities of the Project over a five-year period, the number of people who have advised and assisted us has been enormous. They include parents, teachers and children in Mt Druitt schools who were more than co-operative in all our endeavours; administrators within the NSW Department of Education and the Health Commission of NSW who went out of their way to overcome our many problems; our colleagues within the Schools of Education and Behavioural Sciences at Macquarie University; the part-time research assistants who provided personal and substantive support; and the early childhood educators both within Australia and overseas who provided the most precious resource, time, to aid our deliberations. They are too many to list individually. To all these people we say a sincere 'thank you'.

Without a doubt the Project could not have developed without the substantial resources provided by the Bernard van Leer Foundation, the NSW Department of Education and the Australian Government. In addition, we readily acknowledge The Smith Family for their support and their constant willingness to help the disadvantaged.

Special mention must be made of the support given at various stages by Samuel Ball, Neil Baumgart, Michael Dunkin, Brian Low, Ann O'Keefe and Gary Simpson.

Within the Project, different members took responsibility for specific areas of the Project's activities, and we believe their specific contributions should be acknowledged. These were

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Jill Belme, for children's and teachers' language instruments,
Muriel Healy, for conceptual mathematics instruments,

John Metham, for teachers' ratings of children's behaviours, and Barbara Ashford, Anne Clark, and Carolyn Weick, for data management and analysis.

Especially we would like to thank Jenny Donald, Marilyn Fraser, Edith Lassak and Vicki Simpson for their patience in retyping 'all those drafts' and the extra things that lessen the burden of preparing a manuscript.

Without such a dedicated and conscientious team few of the Project's activities would have been initiated.

John Braithwaite
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1

Perspectives

This book is about the Mt Druitt Early Childhood Project, which was developed to provide quality educational programs for disadvantaged children living in the western suburbs of Sydney. The Project was concerned with the alleviation of educational disadvantage and follows the trail opened up by the Head Start and Follow Through programs in the USA, the Educational Priorities Area programs in Great Britain and a number of Dutch, Belgian and Scandinavian studies. These are among the many programs which have attempted to improve the children's educational chances by providing intensive educational inputs at what some educational psychologists and sociologists, have argued is the most appropriate time in their lives.

In the late 1960s and early 1970s Australia, in common with other western countries, introduced a variety of different programs for disadvantaged groups. For the most part these attempts were small in scale and, for a number of reasons, were not comprehensively evaluated (cf. Teasdale and Whitelaw, 1981), and so politicians, educational adminstrators and interested members of the public were unable to use the results of these local studies to help them develop early childhood policies. In point of fact the two major Australian published reports on early childhood services, the Fry (1973) and Coleman (1974) Reports, highlighted the paucity of policy-oriented research and evaluation studies, and argued for the initiation of action studies in the area. It was in this context that the Mt Druitt Early Childhood Project began and this book details the Project's initiation and development over a five-year period since mid-1975.

Before a detailed account of the Project's development is given, this chapter will address several key issues which influenced the Project's development, in order to set the subsequent description in a broader perspective. In addition, a short historical account of the development of preschool education in Australia is included in order to place the Project within an Australian historical context. Considerations of the points made in the following sections should provide some understanding of the issues we had to consider throughout the Project's operational period.

What Roles do Schools play in the Educative Process?

It was long believed that formal schooling played the dominant role in educating children. Allowing for avowed genetic differences, it was argued (cf. Curtis and Boultwood, 1953) that the major contribution to developing every child's potential would be the provision of adequate curriculum experiences and resources. For example, Montessori contended that the educator should carefully organize the school environment and provide carefully graded didactic exercises to develop the children's physical and intellectual abilities. The lessons learnt in the classroom, it was argued, improved children's self-discipline and this in turn extended beyond the school environment to the wider society (Simmonds, 1917). Schooling was seen by many of these early educators, as indeed it still is by many people, as a way of improving society. The view taken was that the deleterious environmental effects of poverty could be overcome by school practices.

Such views were of course extreme, and today it is difficult to substantiate the notion that education can be an antidote for poverty. The research data clearly suggest that both opportunity and achievement in education are related to income and status, but to state that the two are causally related has yet to be proved (cf. Jencks et al., 1972). It may be argued that when genetic variables are held constant, formal schooling variables do not contribute as much to the variance in achievement test scores, especially in 'developed' countries, as do background or home environmental variables (cf. Jencks et al., 1972; Keeves, 1972; Walker, 1976).

From another perspective, some writers argue that emphasizing the roles played by home environmental variables in affecting school achievement downplays the potential influence of schools and the wider socio-economic system in perpetuating educational disadvantage (cf. Bernstein, 1970; Bowles and Gintis, 1976; Tulkin, 1968). Baratz and Baratz (1970), for example, have forcefully argued that the problems of the disadvantaged are not located in their deficiencies as individuals but in the educational institutions that have perpetuated educational inequalities.

Obviously the question is a complex one and is not easily resolved. School systems and organizational practices do have an important role

to play in the educative process but the extent of this influence has yet to be determined. The statement that schools make no difference to children's educational development has not been substantiated (cf. Husén, 1979), while on the other hand to claim that schools can eliminate educational disadvantage is all too obviously an exaggeration. At best it may be claimed that schools can have a positive influence in overcoming educational disadvantage.

If this argument concerning the potentially positive influence of schools is accepted, the term 'educational disadvantage' then needs to be defined.

What is Educational Disadvantage?

Since the 1960s, various programs throughout the world have tried to establish policies and practices to overcome what is termed 'educational disadvantage'. There is a need to clarify what is meant by this and such associated terms as 'deprivation', 'deficit' and 'difference'.

It should be emphasized at this stage that much of the debate over the use of these terms has arisen because of semantic confusion. Many of the original articles using the terms used them synonymously (cf. Robinson, 1975). Clearly, the words have different meanings and these meanings should result in different approaches to educational programming. Therefore, what is meant here by *educational disadvantage*? Passow's operational definition couched in educational terms has served as a guide for this Project's developments. He defined the concept as follows:

> *Disadvantage*: a child is at a disadvantage if because of social or cultural characteristics (e.g. social class, race, ethnic origin, poverty, sex, geographical location, etc.) he comes into the school system with knowledge, skills and attitudes which impede learning and contribute to accumulative academic deficit. The disadvantage may persist throughout school life and contribute to restricting later economic and social opportunities. (Passow, 1970)

It follows from this definition that *educational deprivation* will occur when children, for social, political or cultural reasons, are restricted in their use of the normal facilities of a school system. Comparing 'deprivation' with 'disadvantage' highlights that, in the former state, children may not be able to go to school, whereas *disadvantaged* children go to school but, for one reason or another, are unable to benefit fully from its offerings. One of the most common situations of educational disadvantage is when children are required to act in schools in culturally *different* ways from those prevailing in the home. Usually this expectation results in children becoming educationally disadvantaged when compared with the normative group and, at worst, results in children being deprived of educational opportunities generally available to all. In such situations a number of different approaches have been formulated to overcome educational disadvantage and its frequent concomitant, educational deprivation.

Unfortunately some of the educational writers in the early 1960s confused the terms 'educational disadvantage' with 'educational difference'. Disadvantaged children were seen to be 'different' from the majority. However such a view belies the fact that *all* children are different from one another in various ways. These differences are only important when school systems do not allow for them in their educational provisions. *Difference* becomes a matter of concern when children are penalized for their 'difference' by unknowing or uncaring school authorities.

In many ways 'difference' is a relative term, for children who are different from normative groups in one society can be unduly disadvantaged, whereas in other societies 'difference' may have a marginal impact upon the child's school-related achievement. The essential factor relating to difference as it affects educational programming occurs when children are judged to be different *within the same society*. Mt Druitt children are demonstrably 'better off' than, say, children living in the slums of Sao Paulo, Brazil. However, within the Australian context the Mt Druitt children are relatively disadvantaged compared with middle-class children. In terms of the criteria adopted by the Australian Schools Commission, the children and schools of the area are 'educationally disadvantaged'. The Commission defines 'educational disadvantage' in the following terms.

> Schools are declared eligible to participate in the Disadvantaged Schools part of the Commonwealth Program on the basis of those social background characteristics of their neighbourhoods which are often associated with lower than average school success, early school leaving and low career aspirations. An Index of Disadvantage, based on 1971 Census data, was first used to identify the schools serving the 15 per cent of urban students and 10 per cent of rural students in the most underprivileged communities across Australia. (Schools Commission, 1979)

These criteria are somewhat narrow in their definition of disadvantaged schools. As the evidence in chapter 3 attests, the children in Mt Druitt are *disadvantaged* by comparison with and *different* in definable ways from middle-class children in metropolitan Sydney. They experience forms of disadvantage which can affect their whole lives. The levels and quality of their education, the quality of their life-styles, their job opportunities and their long-term employment are usually affected in deleterious ways by their being 'disadvantaged'. For the present purposes, it is irrelevant whether the 'disadvantage' and 'difference' is caused by cultural deprivation or some kind of deficit in their family backgrounds. The problem we faced was how to provide worthwhile educational experiences for these children and their families. It was not thought that these experiences, of themselves, would eradicate failure and ensure equality of opportunity, since previous research has clearly shown otherwise (Educational Policy Research Center, 1975). It was hoped that the Project would positively affect the context in which the children lived and in which the schools operated. Such an approach requires that the design of programs aimed at overcoming or mitigating educational disadvantage consider the children and their families, their immediate setting, and the educative institutions, as well as the ideologies affecting all of these forces.

How may Educational Disadvantage be overcome?

The educational literature is replete with books and articles describing a variety of theoretical and empirical solutions to overcome educational disadvantage (cf. Bernard van Leer Foundation, 1971). Theoretically, three different solutions for overcoming the problem of educational disadvantage may be posed. The first solution, aimed at changing the child, is based on the assumption that low socio-economic status children have not achieved optimal intellectual and social development due to their inadequate home environment. To overcome this adjudged environmental liability, programs are established which introduce specialized components to improve the neighbourhood and immediate family environment, and interaction patterns. Such programs often entail direct parental involvement to enable parents to learn home management and tutoring skills.

The second solution accepts that schools are responsible for the difference in academic performance of 'advantaged' and 'disadvantaged' children. To help the disadvantaged, schools are required to modify their curricular offerings and teaching/learning practices to match the needs and potentialities of the disadvantaged. A corollary to this focus on the school is the approach that assumes that members of disadvantaged groups are different from mainstream society and in no way are these differences to be equated with deficiencies. Schools therefore need to change their methods and goals to cater for these different groups and should actively maintain such differences to allow all individuals to realize their full potential. Parents play an important role in this approach because they, in contrast to the majority of professional educators, share the culture of the community which the school serves.

The third solution is based on the belief that drastic concurrent changes are needed in the power relationships in all social institutions in order to equalize the opportunities open to all children. Proponents of this approach believe that schools perpetuate existing social stratification through educationally disadvantaging certain groups, and that a reconstruction of the institutions within our society is necessary in order to achieve real reform. In practice, few attempts have been made to implement this approach, though several pioneering attempts have been reported in the literature (cf. van Rensburg, 1978).

By and large most attempts to overcome educational disadvantage have been based on one or other of these three solutions or eclectically have incorporated components from each. Unfortunately, the available empirical evidence for the efficacy of any of them is largely based on attempts to implement the first or second solution. Nevertheless, it is possible to make certain generalizations from such studies which will be relevant to any attempts to deal with educational disadvantage.

- The concept of 'school readiness', which many, if not most, of the early programs attempted to develop with disadvantaged children, is not a static one. Throughout children's educational development they need to acquire different types and qualities of 'readiness'. Further, 'school readiness' is culturally specific as a concept. To generalize such a concept beyond one specific group of disadvantaged children for whom a particular program has been developed is fraught with danger (Palmer and Andersen, 1979).

- Programs vary in the processes they institute and in the effects they generate (Stallings, 1973; Stebbins et al., 1977).
- Attempts to assist the disadvantaged through short-term programs are not successful. Programs need to be developed over at least two years if they are going to have any impact (Zigler and Valentine, 1979).
- Highly structured and individualized programs produce greater gains in achievement test scores than those programs that are not so highly structured (Smith, 1975; Stebbins et al., 1977).
- Programs closely allied with parents and the community tend to be more successful than those isolated from both groups (Irvine, 1979).
- Successful programs are characterized by adequate support services with comprehensive staff training (Bissell, 1972; Weikart et al., 1978a).
- Programs for the disadvantaged must be more than minor variations on existing curricula and should incorporate a carefully developed language component (Blank and Solomon, 1968).
- Television programs, especially if supplemented by home visitors, are an effective way of reaching disadvantaged children (Ball and Bogatz, 1970; Bertram et al., 1971).

While these propositions do not appear to uncover new ground for educators, they do represent ideas that are supported by quite extensive research evidence.

Another important concept influencing the development of appropriate programs for the disadvantaged is the notion of *social competency* (Anderson and Messick, 1974). When the first Head Start programs were developed, emphasis was placed on the development of children's IQ scores and, in fact, intelligence test quotients became the measure by which these programs were evaluated. The original studies showed that preschool-aged children enrolled in full-year Head Start programs made highly significant gains in IQ scores but that these gains were short-lived (cf. Weikart, 1967). However, many program developers argued that their programs were aimed at achieving a wider range of abilities and attitudes than those traditionally assessed by standardized intelligence tests (cf. Pagano and Dolan, 1980). They further argued that the concepts of school-readiness/performance and intelligence test scores, although related, are not equivalent. Broadening their objectives, they advocated the development and evaluation of programs incorporating health, community welfare and social contributions as well as the more traditional educational components (Zigler, 1973). This development was finally made more purposeful through an attempt to specify the facets of *social competency* considered relevant in guiding curriculum development and evaluation. A symposium was held to attempt to define what is meant by the term 'a socially competent preschool-aged child' (Anderson and Messick, 1974). The resulting report commented that social competency necessitated successful performance in each of twenty-nine different categories, including differentiated self-concept, sensitivity and understanding in social relationships, perceptual skills, control of attention, psychomotor skills, language, cognitive and memory skills, and general knowledge and competence motivation. The specification of the attributes of *social competency* provided a lead for researchers to broaden their curriculum goals and evaluation procedures beyond those variables previously assessed.

Another issue relating to how educational disadvantage may be overcome concerns the development of the *best* program for disadvantaged children. Irrespective of the claims made by some program developers, there does not appear to be a 'best' program for all disadvantaged children. Rather, the various programs produce differential results with the outcomes being to some extent predetermined by the measures used to evaluate them (cf. House et al., 1978). Moreover, it is increasingly apparent that programs should reflect the culture into which they are introduced and, to some extent at least, arise endogenously from it. Even in allegedly sophisticated western societies, cultural influences and practices can thwart the effectiveness of programs previously judged to be effective. Quigley (1971), for example, cites the hostility of English nursery teachers to the introduction of the *Peabody Language Development Kit* with its emphases on structured teaching situations. It was apparent that the preservice training of the teachers had cast their pedagogical techniques into one mould and that they were not prepared to vary from their established or preferred teaching styles. Clearly what is best in terms of intended goals under one circumstance is not necessarily best under another circumstance.

The brief review above does indicate that a number of lessons have been learnt from previous attempts to help the educationally disadvantaged. It can no longer be claimed that there is only one way to achieve this goal. Rather, different programs may be introduced, each of which generates different results. The efficacy of each program depends upon the quality of staff training and support, the expectations of schools and the community, and the extent to which the programs are woven into the school/community fabric.

When should Programs to overcome Educational Disadvantage be introduced?

If the introduction of programs is one answer to the question of *how* educational disadvantage may be overcome, the question of *when* such programs should be introduced remains. In many ways this question is difficult to answer empirically. To attempt to do so would mean designing a study evaluating the introduction of educational programs for disadvantaged children at different age ranges. Apart from the legal and social difficulties surrounding such a move, most educators would be ethically concerned with the delay in introducing educational programs necessitated by such a study. Consequently, it is difficult to state conclusively *when* the most appropriate time to introduce such programs may be. The only possible way to determine when programs should be introduced is to examine the results from a number of different studies and to generalize from them. The problem with this approach is that there are obvious gaps in the range of studies that can be reviewed.

The majority of comprehensive programs, designed to overcome educational disadvantage as distinct from remedial programs, focus on the child under eight. The rationale supporting such endeavours may be found in the psychological theories of Bloom (1964), Erikson (1950), Hebb (1949), Hunt (1961) and Piaget (1955), which stress the importance of these early years to children's subsequent cognitive, affective, psychomotor and language development. Additionally, biological and nutritional research data (Birch and Gussow, 1970) reinforce the previous evidence about the importance of the early years in children's development.

Confronted by this evidence and the intensive lobbying maintained by different pressure groups, most western governments introduced early childhood programs for disadvantaged groups. By so doing it was argued that the new programs would:

1 help to prevent the cumulative educational deficit shown to occur in disadvantaged children;
2 maintain children's initially positive attitudes towards school by preventing the development of the negative attitudes associated with failure;
3 capitalize on the relatively greater opportunities for co-operation between families and the schools; and
4 allow a wide application of methods suited to children of all types of ability and origin at a time when the pressure of academic results is minimal.

Often the early programs failed to achieve their intentions because of the haste with which they were started (Evans, 1975). Nevertheless, in the mid-1960s the belief was widely held that these programs were the most effective way to help disadvantaged children. For example, the initial evaluation data indicated that children enrolled in these preschool programs scored significantly better on intelligence and standardized tests than children who were not enrolled in such programs (Karnes, 1969). However, follow-up studies (cf. Weikart, 1972) suggested that the initial advantages in IQ scores were not maintained after three more years of schooling. It did appear that, for a variety of reasons, the efforts of those developing early childhood programs for the disadvantaged were ineffective when traditional achievement and intelligence test criteria were used as benchmarks. However, recent studies (cf. Lazar, 1977; Thirion, 1978), following up children five to ten years after their original enrolment in early childhood programs with a deliberate cognitive focus, report significant long-term effects on school performances. It is difficult to determine whether these studies report these findings because the earlier studies failed to evaluate more appropriate variables, or whether other significant intervening variables affected the development of children in the studies, or whether the results do reflect the appearance of long-term 'sleeper effects' generated by enrolment in the original programs. Clearly, carefully designed longitudinal studies using multiple evaluative criteria are necessary to determine the potential long-term effects of early childhood programs for the disadvantaged.

While undoubtedly the earlier studies on the introduction of early childhood programs for the disadvantaged in the 1960s created great interest, the publication of the Ohio State University/Westinghouse evaluation of the Head Start programs (1969) dampened community and professional expectations concerning the effectiveness of Head Start programs. To some extent this study was evaluating a hotch-potch of programs, often run by staff with minimal training. The projects tended to be very short, sometimes involving no more than half-day attendance in the six weeks before starting school (Lomax, 1979). However, analyses of the above data by Bowles and Levin (1969), Cain and Watts (1970), Jencks et al. (1972) and Mayeske (1975) challenged many of the findings of the Westinghouse evaluators. These studies criticized the data bases and analytic techniques followed in the Westinghouse study and suggested alternative conclusions to those claimed by its authors. While the detailed examination of these studies is beyond the scope of this book, it is necessary to indicate that Mayeske's study in particular reinforced some of the values associated with the introduction of early childhood programs. He found that to the extent that school factors make a difference in achievement, disadvantaged children seem to be more affected by school inputs than do non-disadvantaged children. Consequently it did appear that the introduction of early childhood programs for disadvantaged children could generate worthwhile educational results.

Other short- and long-term evidence supporting the introduction of programs for children under five comes from studies subsequently undertaken in the USA, Great Britain and Europe (cf. Chazan, 1978; Osterrieth et al., 1977; Stebbins et al., 1977). Generally the evaluation of these studies reported significant results favouring the introduction of programs, when the results comparing the experimental and control groups were analysed. Disadvantaged school children's educational performances improved through the provision of specialized early childhood programs and the variety of programs produced different results.

It should not be thought that all authorities agreed that under five was the most appropriate time to introduce programs to assist educationally disadvantaged children. Kagan (1973) and Rohwer (1971), for example, claimed that programs for disadvantaged children were more effective when they were introduced at a later age. While the evidence they present has been challenged by many writers (cf. Zigler and Valentine, 1979), it is apparent that the question 'When should programs be introduced?' should be modified to 'For specific groups of disadvantaged children, what particular stimulus inputs are best and in what period of growth?' (Palmer and Anderson, 1979).

At this point, consideration must also be given to the length of the programs. Studies to date find that the longer the intervention lasts, the better. This leads Palmer and Andersen (1979) to conclude that the earlier the intervention begins and the longer it lasts the better.

Australian Preschool Programs for the Educationally Disadvantaged

While it is not the purpose of this study to review the history of preschool education in Australia, it is necessary to describe briefly some of the historical developments that influenced its growth.

Australia, in common with many other countries, has attempted to provide a range of services for the educationally disadvantaged. While the greatest impetus came after the mid 1960s, the care and protection of young children was very much the concern of the early Governors of the original penal colony established at Sydney in 1788. This concern was maintained by prominent community members who supported the development of Ragged Schools, which were established on a voluntary basis:

> to teach and train children and to help their families living in the neglected slums and alleys of the growing colony. This mingling of education and philanthropy, the principle of voluntary service, the close co-operation between parents and teachers, were all developed further by the Free Kindergarten Movement founded in 1895. (Walker, 1964)

By the second decade of the twentieth century, this movement had spread to all the Australian States and had developed into an effective educational system founded on Froebelian principles and subsequently modified by English, German and American influences. The developing system integrated components from these sources rather than originating a unique educational approach.

> The philanthropic basis (of preschool education) combined with the fact that pre-schools were never part of the first government school systems had several effects. First, there was no suggestion of providing a universal service because voluntary organisations' funds did not permit it. They directed their energies towards the most deprived sections of the community. Second, as the setting up and running of pre-schools involved citizen initiative, over time some people of higher socio-economic status and with the necessary organising skills and leisure recognised the value of pre-school education for their own children. Consequently the two extreme ends of the social system were catered for while the 'average' child, neither sufficiently poor nor sufficiently wealthy, tended to miss out. (Australia. Commonwealth Department of Education, 1981:143)

The services that developed across the country were very mixed, and a confusing picture of health, education and welfare agencies offering rather unco-ordinated services for children under school age emerged (Australia. Commonwealth Department of Education, 1981). New initiatives were taken from time to time as, for example, the opening of the Lady Gowrie centres to provide opportunities for research on disadvantaged children (Stamp, 1975) but due to numerous factors such as staff shortages, the true potential of these centres as research institutions was never reached.

It is important to draw attention to the crucial, formative role played by the various training colleges that were established in each State to train prospective preschool teachers. The teacher/learning practices that the colleges encouraged reflected an eclectic approach to education and many observers commented upon the lack of a clearly articulated theoretical basis for these practices (cf. Ashby, 1972). Traditional practices that had grown up over the years were constantly repeated to each new cohort of potential preschool teachers. Few attempts were made to challenge the assumptions on which the colleges based their training programs. Consequently, preschool practices throughout Australia prior to the 1970s reflected a uniformity of approach that was reinforced by the training colleges' practices.

As mentioned above, a variety of services for disadvantaged children had emerged in each State. While all States maintained government departments to oversee the health, social welfare and educational needs of the disadvantaged, considerable variation in the range and quality of these provisions existed among the States. Some state governments made direct grants available for the running of preschool centres, while others assumed the total recurring costs of the centres. The number of places available in preschools for disadvantaged children and the costs of enrolling children in them varied tremendously. Primarily this was caused by the willingness of some state governments to support these services at the expense of other functions.

Around 1970 and particularly during the election year of 1972, the provision of preschool and day-care facilities for all groups in the country became an important political issue. Repeated calls were made by politicians, educators and the general public to increase the quality and quantity of the existing services throughout the country in order to achieve equality of opportunity. This increased emphasis mirrored the overseas influences referred to at the beginning of their chapter. The election of the Whitlam Labor Government to the Federal Parliament in 1972 saw the increased allocation of moneys for disadvantaged groups and the development of new policies to meet their needs. In particular, the programs for the disadvantaged 'under fives' and their families received increased federal financial resources and manpower. However, this increase was not achieved without fervent debate between two different pressure groups. The Australian Pre-schools Committee in 1973 (Fry, 1973) recommended that access to preschool education for all four-year-olds in Australia, together with day-care centres for the disadvantaged, be established. A contrary approach was taken by the Social Welfare Commission Report which was produced at the same time. This latter report argued that preschool centres do not cater for the needs of the disadvantaged, lone parents or other needs groups within the community and it also argued for the establishment of a wider range of community facilities than was available at that time.

Both reports were reviewed by the Priorities Review Staff that was established by the Federal Cabinet. This review did not fully accept either of the earlier reports. Their report claimed that the Report of the Pre-schools Committee was too concerned with preschool education and that it did not help workforce participants with their child-care needs. The Priorities Review Staff accepted most of the recommendations of the Social Welfare Commission and argued for the establishment of a wide range of services that would both educate and care for children under five. To oversee this range of services, a Children's Commission was to be established by the Federal Government. However, the defeat of the Labor Government at the end of 1975 saw the proposed Children's Commission replaced by an Office of Child Care within the Social Security Department. This Office was to provide policy advice on children's services and to administer the whole range of children's services that were supported by the Federal Government.

In spite of the relatively long period since the first preschools were established in Australia, comparatively little research has been conducted on this age group. Stamp's (1975) listing of the research topics supported by the Lady Gowrie centres since their inception primarily cites isolated studies and does not reveal any concerted attack on the research problems of the area. In many ways the previous 'state of the art' of research in the area reflects the comparative neglect of this aspect of education by university and government departments.

While undoubtedly there were many disadvantaged children of Anglo-Saxon descent living in Australia, one group which became increasingly disadvantaged as the white settlement of Australia spread was the Aboriginal. The majority of Aboriginal children were in no man's land; usually denied the opportunity to be educated in their traditional manner, they were not, on the other hand, encouraged to attend white schools. Consequently, Aboriginal children, living in suburban and country areas from the establishment in 1788 of the first white settlement, until the 1960s received only a limited education. The ethnocentric attitudes of the white settlers meant that the early attempts of missionaries, administrators and philanthropists were aimed at educating Aboriginal children to fill low-status positions in the white

Australian society. It was not until the 1960s that the States accepted formal responsibility for Aboriginal education.

Aboriginal preschool education followed the same pattern and little attention was paid to the development of appropriate educational programs. Few preschool centres were established in country areas, and for the most part these depended upon church missionary support for their continued existence. The first substantial government initiatives for Aboriginal preschool education came from the Federal Government when four preschool centres were established in the Northern Territory in the beginning of the 1960s. Subsequently, state governments accepted limited responsibility for the establishment of Aboriginal preschool centres. Few evaluation studies on the educational impact of these centres were undertaken but the limited evidence available suggested that Aboriginal children benefited as much from the educational programs as did their white counterparts (Dasen et al., 1973).

Two symposia on Aboriginals and education conducted in 1967 provided a major impetus for the establishment of effective preschool programs for Aboriginals. Following these, the Bernard van Leer Foundation sponsored four action research programs for Aboriginal children. Two other Aboriginal preschool programs sponsored by other sources were also established at this time. Of the six programs, only the Bourke Preschool Program attempted to evaluate the effectiveness of two different preschool programs. Its findings suggested that a program based upon the Bereiter-Engelmann approach to learning basic skills was initially successful with their sample of children (Nurcombe et al., 1973).

Of the other five projects, limited evaluation studies suggested that their programs were reasonably successful in overcoming the initial disadvantage evident within each group of children. The failures of the projects centred on their inability to be self-sustaining and to maintain the benefits and experiences accrued by program developers, children and parents. The results suggested at best that short-term benefits accrued to the parents, schools or communities involved in the projects, especially in ways that are difficult to document (Teasdale and Whitelaw, 1981).

There have been few other studies in Australia which have attempted to evaluate systematically the advantages and disadvantages associated with the provision of early childhood programs for the disadvantaged. The majority of evidence about the effects of special programs on disadvantaged children reflected overseas rather than local knowledge. Obviously if there was an adjudged need to provide greater resources for the disadvantaged child under five within Australia, it was necessary to develop extensive empirical evidence concerning educational programs for the disadvantaged, based on local rather than overseas studies, and to gather data to address the issues introduced in the earlier sections of this chapter. This motivation provided the initial stimulus for the commencement of the Mount Druitt Early Childhood Project.

The subsequent chapters of this book describe the Project's development, the types of programs that were introduced, the effects these programs had on children, and on their parents and the community, and finally, the implications for policies on early childhood education.

2

The Project's Intentions and Development

The previous chapter introduced issues of concern to all who attempt to overcome educational disadvantage, and briefly reviewed past Australian initiatives in the development of early childhood programs for disadvantaged preschool groups. This chapter aims to review the Project's developmental phase, outline the Project's goals, and specify what these goals meant for each group involved—children, teachers and parents.

How did the Mt Druitt Early Childhood Project begin?

As noted previously, the Bernard van Leer Foundation had for some years been actively supporting early childhood and family development projects among Aboriginal people in Australia (cf. Teasdale and Whitelaw, 1981). In addition to this focus on programs for disadvantaged Aboriginal groups, the Foundation expressed an interest in developing new early childhood programs for other disadvantaged groups if the need for such programs could be shown to exist.

In the early 1970s, a team from Macquarie University began investigating ways of helping the disadvantaged and identifying potential target groups. Four disadvantaged groups identified within the Sydney area were:

1 non-English speaking migrant children, the great majority of whom lived within the inner city area;
2 underprivileged, disadvantaged Australian-born children in inner city areas;
3 disadvantaged children living in government housing estates in the outer suburban areas;

4 Aboriginal children, other than the fringe-dwellers for whom the Bourke Project had been initiated (cf. Teasdale and Whitelaw, 1981).

After extensive discussions with relevant departmental groups, community groups and charities, it was decided to examine in greater depth the educational needs of the families living in the new government housing developments in the western suburbs of Sydney. These housing developments had been created in the 1950s and 1960s to alleviate the acute housing shortage prevalent among low socio-economic groups. Similar housing estates are to be found in every major residential conurbation in Australia and it was hoped that any findings generated by an action program could be generalized to some extent to similar situations. Further, while the quantity of research conducted on the three other possibilities was not great, a number of research studies featuring these three groups were already underway when the original discussions were held.

Earlier reports on the government housing developments (cf. Brennan, 1983) suggested that facilities were at a minimum and that major social and educational problems had arisen for children in the schools. A survey by Dr W. Coppell of the School of Education at Macquarie University confirmed that this was the case, and the Mt Druitt area was proposed as one in need of a compensatory early childhood education program. Given the comparatively young age of the population within the area, the establishment of early childhood programs was judged to be one means of helping the disadvantaged children living there.

The School of Education was interested in submitting a proposal to the Bernard van Leer Foundation for such a project, but suitable buildings for the program did not in fact exist in the Mt Druitt area. Long delays were encountered in trying to determine the extent of possible government and community support for the provision of early childhood centres in the area. Several possibilities were considered; for example, the use of an old house, 'Rutherglen', which had been donated to the Housing Commission for community use. Ultimately, the greater availability of funds for education following the election of the Federal Labor Government in 1972 made possible a satisfactory outcome to the lengthy negotiations which had been taking place between Macquarie University, the New South Wales Department of Education and other authorities.

It was agreed that sites would be provided by the NSW Department of Education in four of its existing primary schools in the Mt Druitt area for the building of preschools, with the building costs to be met by the Federal Government. The recurring expenses associated with these four centres would also be shared by the Federal Government and the NSW

State Government. It was also agreed that, if the Foundation was prepared to assist the Project, its grant should be to Macquarie University, but that the program should be run jointly by the University's School of Education, the NSW Department of Education and The Smith Family, a welfare organization which had been operating in the Mt Druitt area for some time. Later, the Health Commission of New South Wales also indicated interest in the Mt Druitt Early Childhood Project and provided facilities and personnel for the regular medical examination of the children. Subsequently, the Health Commission joined the Project's Standing Committee. At the local level, a Field Committee was established to ensure effective liaison among the schools, parents and Project personnel. This committee comprised representatives of the Project's staff, educational administrators, the executive of the schools involved in the Project, and parents.

In 1975 the Bernard van Leer Foundation approved a grant to Macquarie University for the development, implementation and evaluation of five different early childhood programs for children in the Mt Druitt area of Sydney. The five programs selected for development were:

a *Cognitive Program* based on the Cognitive Curriculum developed by Weikart et al. (1971) and modified for Australian schools;

a *Competency Program* based on the identification of specific competencies to be attained by children;

a *Contemporary Program* representing 'traditional' Australian early childhood educational practices;

a *Behaviourist Program* based on the curriculum developed by Bushell (1973) for the Head Start and Follow Through projects;

a *Home-based Program* developed from the practices followed in the US Home Start program (O'Keefe, 1979).

All programs were to feature parental and community involvement as part of their operational practices. The grant was for $340 000 and covered the first three years of the Project's existence. It was subsequently increased to $931 000 to cover the second phase of the Project's activities. The Federal and NSW State Governments paid for all capital expenditure and recurrent costs associated with the Project's teaching activities. In addition, the State Government agreed to pay the salaries of four teachers in the Home-based Program over the life of the Project. It was stressed at the commencement of the Project that the resources made available to the centres were to be the same as those made available to all new preschool centres funded by the Federal and State Governments.

The Project's Goals

Given the essentially collaborative nature of the Project, it is not surprising that the development, ordering and phrasing of the Project's goals changed over time. At the beginning some clear-cut ideas were held concerning the goals towards which the Project's activities should be directed. The ensuing discussions, experiences and revisions modified the initial statements of goals and the following represent the agreed Project goals.

Through the development and implementation of the different programs to:

1 provide an environment which would help children to develop physical, intellectual and social abilities through interaction with a widening range of experiences—by so doing, it was intended that children would develop their
   - conceptual and language abilities;
   - prosocial behaviour;
   - creative potentials in a range of different contexts;

2 involve parents and the community in the education of their children by providing opportunities for the former to share in the education process;

3 care for the children's health, nutrition and other needs through active involvement with parents and other agencies in the area;

4 provide the guidance necessary for the continuity of the programs through the infants schools; and

5 evaluate the outcomes of the five different early childhood programs established by the Project.

These goals reflect the emphasis of all the programs developed by the Project and mirror the notion of *social competency* outlined in chapter 1. They also form the bases for the model designed to evaluate the Project's activities. This model is elaborated in chapter 5.

It should also be pointed out that each of the five programs developed their own specific goal statements and that these goals guided the internal development and evaluation of each program. These program goals could be regarded as a subset of the Project's goals, for the latter guided the final evaluation activities.

The five programs represented differing viewpoints on a continuum about teacher/learner strategies. All attempted to individualize the educative process and to provide worthwhile educational and social experiences for children and their parents.

Obviously one of the first and continuing steps in the Project's development was to translate the goals above into more detailed intentions and procedures for each of the three groups involved in the Project's activities. The intentions for each group—children, teachers and parents—are elaborated in the subsequent sections.

Project Intentions for Children

Chapter 1 summarizes some of the research findings which highlight the potential roles of early childhood programs in assisting the disadvantaged. The studies referred to there indicate that successful programs for the disadvantaged need to be planned using a multi-disciplinary approach and this concept influenced all of our planning. Concern for children's health and social welfare was equally important in our thinking and planning.

The attempts to develop effective programs within the preschools emphasized our belief that such programs can have a positive effect upon what Bloom terms children's *cognitive entry characteristics* (Bloom, 1976). These characteristics are the specific knowledge, abilities or skills considered to be the essential prerequisites for the learning of later school subjects or tasks. Cognitive entry characteristics appear able to be modified through the provision of appropriate school programs. For example, research evidence (cf. Bloom, 1976) indicates that much of the variation in school learning is directly determined by the variation in children's cognitive entry characteristics. There was no attempt to alter children's intelligence test scores, rather the programs endeavoured to ensure that children reached adequate levels of competence on cognitive entry behaviours along the lines discussed in chapter 1.

In countries where children begin school at or around five years, the transition from home to school is a highly anxious period. Social skills and abilities acquired at home may be congruous with those stressed in the school. Where this is the case, transition is relatively easy. However, when there is incongruity or conflict between the social practices of the home and school, as often is the situation with disadvantaged children (cf. Passow, 1970), initial problems may occur which will affect children's subsequent attitudes to schooling. Consequently, we endeavoured to identify and reinforce appropriate school behaviours wherever possible and to make the parents, teachers and schools aware of the problems that may occur over conflict in the attitudes and values of school and home. In practice, the closer the home/school relationships, the less likely are potential clashes. The comparatively low percentage of migrants from non-European cultures in the Mt Druitt area meant that potential conflicts between competing school and home cultures were not exacerbated by the presence of children from a variety of extremely different ethnic backgrounds.

The importance of physical well-being to eventual school success is well documented (cf. Mowrer, 1950) and each program stressed the acquisition of healthy behaviours and attitudes. The medical and nutritional evidence presented in chapter 5 indicates that the children enrolled in the various schools were healthy overall. Nevertheless it was one of the concerns of the Project to identify and obtain relevant social and/or medical assistance for children with specific needs in these areas. Fortunately, the staff of the Mt Druitt Polyclinic willingly helped whenever they were called on. Having medical, dental and paramedical resources continuously available meant that such services could readily be obtained whenever the need arose. When crisis situations occurred affecting children and/or their families, and these required outside assistance, the resources of The Smith Family, a local charitable organization and one of the Project's supporting agencies, were also available. Generally, timely help using either the Polyclinic's or The Smith Family's resources overcame most immediate problems.

It was through this comprehensive approach to helping the children enrolled in the various schools that the Project endeavoured to assist this group of disadvantaged children. The available resources and practices were not considered to be beyond the physical and financial resources of most Australian communities. Rather we believed that such resources ought to be used in an exemplary manner which could be replicated in similar settings.

Project Intentions for Parents

Parents' roles as the primary educators of their children have long been documented, and educators have developed a number of programs utilizing home visitors and parent courses to reinforce these roles. Studies (cf. Gordon, 1972; Irvine et al., 1979; White et al., 1973) have shown that the interactions between children and their parents have a direct effect upon children's language acquisition and on motivation to learn, both at home and school. Knowing the importance of these parental roles, we sought to integrate school and home learning whenever possible and to stress to parents the importance of these interactions for their children's development. It was argued that this emphasis would increase the children's chances of success in school through increasing their motivation to learn. The importance of children having a positive attitude to school, which is reinforced by parents, cannot be overstressed, especially when the children are required to attend school for at least ten years.

To foster more effective home/school co-operation and to support parents in their educative roles, several techniques were used. First, parents were encouraged to become actively involved in their children's schooling by continual participion in school activities. Of course, not all parents took advantage of the opportunities offered, but a majority did. Predictably, we judged that the parents who were not involved tended to be those whose children could have benefited more from such involvement. From time to time specific attempts were made to encourage these parents to participate in school activities but often these initiatives had limited success and this situation continually concerned us.

Second, regular discussion and information sessions were arranged for parents on topics suggested by them. These sessions were essentially designed to provide parents with information about a range of child rearing/development issues. Similarly, coffee clubs often sparked off impromptu discussions on matters of immediate concern to parents. Once or twice a year district meetings were held with parents from other Project schools to discuss local developments and practices. These meetings reinforced parental roles in each school and suggested possible future developments that could be integrated into the existing activities.

Third, parents were kept informed of the learning experiences introduced in the school programs and, where appropriate, were encouraged to extend these experiences at home. To help parents do this, teachers sent home suggestions about activities using resources available within the family.

All of the initiatives that were introduced had the ultimate purpose of strengthening home/school links and of reinforcing the educative roles of the parents. In this way, it was hoped to interrelate the learning experiences and teaching styles of the schools and homes as much as possible. It should not be assumed that this interaction was a one-way process from school to homes. On the contrary, knowledge of the home environment provided a substantial basis for curriculum planning and development, and also enabled individuals to be provided with compensatory experiences when particular needs were noted.

Project Intentions for Teachers and Schools

The schools in the area were opened with large enrolments, shortages of equipment and a staff largely comprised of young, inexperienced teachers. Within its schools the Project had to provide initial and continual training for the teachers and aides in order to develop and implement the various programs. Further, we had to develop the specific curriculum materials and guides for the teachers and aides to follow. Sometimes these developments occurred with little effort.

However, for the most part they required considerable initial effort, followed by evaluation and rethinking of our various attempts at developing curriculum materials. At times the process had to start again when teachers left to go on accouchement leave or were transferred to other schools. Working with teachers was a constant, formative experience compounded of specific anxieties, frustrations and pleasures.

Important as these developmental activities were for the successful implementation of the Project, other less demonstrable effects had to be nurtured. These efforts necessitated changes in teachers' attitudes and teaching styles. To achieve this required constant feedback of information and assessment of performances in the classrooms, both aspects being more extensively emphasized than teachers would normally encounter. We expected the teachers to be conscious of their own classroom performances and biases so that they could modify their behaviours in suggested ways. Being continually assessed from a variety of viewpoints can be onerous, and it was essential to provide teachers with immediate feedback from the evaluations in order to substantiate their necessity. Fortunately, the teachers were more than capable of making the necessary adjustments to their teaching styles and attitudes, based on the feedback provided.

Schools as institutions have their own ethos which affects any attempts to initiate changes (cf. Sarason, 1971). As implementation of the programs had wider impacts beyond the classrooms associated with the Project, it was essential to have the wholehearted support and encouragement of the principals and infant mistresses of the schools. This meant keeping the schools informed about Project developments and initiatives, and being able to respond to their requests for assistance. Co-operation between the schools' administrations and Project personnel was, for the most part, readily forthcoming. More importantly, when conflicts did occur, as was inevitable over a five-year period, they were resolved through discussion either at the school or Field Committee meetings.

In the final analysis, responsibility for implementing the programs lay with the schools. Further, once the Project was completed, any possibility for continuation and development of its work would reside in the same schools. It was therefore imperative that an element of mutual trust and respect was established between Project staff and school administrators and teachers. Primarily, this was done by developing our programs and activities in close co-operation with the people in the schools. This in turn implied careful consideration of both personal goals and objectives specific to the program, so that there was a common agreement on what we were trying to do. At times strongly held beliefs had to be re-evaluated and modified in the light of competing views. At other times initiatives were changed and strengthened through continual dialogue with the schools. The Project's effectiveness was strengthened in many ways through the schools' support and, in turn, the school administrators and teachers commented from time to time on what they saw as the value of their association with the Project.

The Settings where the Project was established

Chapter 3 will present an overall description of the demographic characteristics of the Mt Druitt area and the life-style and facilities available to the families living there. In the following sections it is intended to describe in more detail the characteristics of the schools, teachers and children involved in the five programs.

School Characteristics

Each of the five primary schools where the programs were established was typical of New South Wales departmental schools. Each school had a principal who was responsible for the overall running of the school and for the formulation of appropriate curricula for the four primary classes, Years 3 to 6. To assist the principal, the infant mistress had responsibility for the infants section of the school, comprising Kindergarten, Year 1 and Year 2 classes. The five schools ranged in size from three hundred pupils to an enrolment of over one thousand.

Each primary school associated with the Project had been built since the late 1960s to cater for the rapidly increasing population in Mt Druitt. The majority featured modern buildings and play areas and represented some of the latest developments in school architecture in New South Wales. The exception to this was the school where the Home-based Program was finally established. This school had been established in long rows of temporary classrooms and remained so until its transfer to its permanent site in 1979. In the early years, all the schools had high enrolments and were among the largest primary schools in the State. Apart from the senior administrators in each school, the great majority of teachers were recent graduates from universities or colleges of advanced education. While class sizes corresponded to those prescribed by the NSW Department of Education, the amount of equipment and materials available to teachers and children was initially restricted. Through the efforts of parents organizations and the extra resources allocated by the Australian Schools Commission's Disadvantaged Schools Program, these material deficits were slowly overcome.

When the Project was first 'approved in principle', the NSW Department of Education finalized arrangements to build a preschool centre in the playgrounds of each of four selected local primary schools.

These preschool centres were to serve the needs of the children in the immediate areas surrounding the schools and it was expected that after attending the preschool centre for one year the children would enrol in the Kindergarten classes of the same school. These preschool centres were to be the initial location of the Project's activities and each centre had one of the programs established in it. Fortunately, each centre was built to the same architectural specifications and was given equivalent basic educational and play equipment. The equipment was supplemented by the allocation equal sums of money to each centre for the purchase of additional material. The choice of equipment was made by the teachers and parents. The only restriction placed by the Project upon their selection of materials was that no materials purchased should have an integral teaching methodology—for example, *Distar* materials (Englemann and Bruner, 1974). Without such a reservation it would have been impossible to differentiate between the effects generated by the use of these materials and the effects sought as a result of systematic program design implementation.

The establishment of the Home-based Program caused greater problems than those associated with the other four preschool programs. The original plan envisaged the placement of a home-based teacher in each preschool centre to provide an effective link between school and home and to establish a home-based preschool program for those parents who did not wish to enrol their children in a centre-based program. Unfortunately from a research point of view, the overwhelming majority of parents living in the neighbouring catchment areas of each of the four schools enrolled their children in the preschool centres. Those parents who did opt for the Home-based Program were parents whose children had medical or behavioural problems. Worthwhile though the provision of assistance to such parents would have been, the establishment of a 'special education' home-based preschool program was not an objective of the Project. On the other hand the Project could not ignore the needs of such children and their parents. Consequently, it was necessary first to find alternative ways of assisting these people and second to seek an alternative location within the area for the establishment of the Home-based Program.

Eventually it was decided to establish the Home-based Program in a primary school in an area of Mt Druitt having no preschool, day- or family-care centres. The school's administrators were committed to making their school a community-based one, emphasizing a close association between school and home. Hence the establishment of the Home-based Program there was doubly welcomed for its value as a worthwhile educational adjunct for preschool-aged children, and for its potential value in effectively linking home and school. To provide a headquarters for the Project's staff and a meeting place for parents and children, a temporary double classroom block was made available within the school's grounds.

As the Project's activities were predominantly concerned with the infant schools, it followed that the infant mistresses had a large input into the planning and daily procedures of the various preschool and infant programs. General meetings were held with the schools' administration to explain the Project's objectives and intended curricula practices. The infant mistresses, in conjunction with the school principals, chose the program which they wanted implemented in their school. As the Project evolved, their commitment to the attainment of its goals became an essential component.

Program Assistants

To guide and assist the schools in the design, implementation and evaluation of the five programs, a program assistant from the Project's staff was appointed to each school. These program assistants were recruited from the staffs of the colleges of advanced education, schools and government agencies and appointed on short-term contracts to Macquarie University. They were selected because of their academic qualifications, their knowledge of schools, their appreciation of both the stated and hidden curriculum and, above all, their ability to work successfully alongside teachers and administrators in the development of the programs. With one exception the program assistants continued their association with the same program over the four-year developmental period.

It is difficult to summarize the roles program assistants had when carrying out the complex tasks involved in working closely with schools and teachers. They had to be advisers, initiators, critics, educational researchers, public relations personnel and above all, positive supporters to the teachers and parents. All these tasks required considerable commitment to the Project, and at the same time preservation of an objective attitude to the autonomy of their own particular program.

Weikart et al. (1978a) have commented upon the important role such advisers can have on influencing the successful implementation of educational programs. If, for example, one program is given continual support compared with another which receives minimal support, it is likely that the teachers in the latter will not be as successful as those in the former in developing and implementing their program. To try to ensure that the support the advisers gave was as equitable as could be hoped for, their involvement was monitored by the Project's Field Director. However, it was not necessary at any stage to suggest possible adjustments that the program assistants should make to maintain reasonably equitable involvement with the teachers and the schools. Undoubtedly, the shared experiences communicated during frequent formal and informal meetings contributed to the equality of temporal input to all the programs.

The crucial roles played by the program assistants in the development and implementation of the Project's activities cannot be overstressed. Their commitment to the Project's goals went far beyond reasonable expectations and reflected their motivational levels.

Teacher Characteristics

Both objective and subjective evidence to date confirms the crucial roles teachers play in the implementation of early childhood programs (cf. Brophy, Good and Nedler, 1975; Stallings, 1975). It was vital for the potential success of the Project to recruit teachers who would be in the best sense of the term 'researching master-teachers': that is, teachers were wanted who were judged to be committed, effective early childhood teachers, who had taught disadvantaged children and who were willing to bear the increased work-load associated with the Project's activities. Further these teachers had to be prepared to work hard to modify their existing teaching behaviours if necessary, for they had to work in team-teaching situations. If the foregoing suggests that the teachers were exceptional, this was not the intention. The selected teachers were not judged to be so atypical that replication of program implementation in other settings was prohibited because of the 'uniqueness' of the original group.

The original intention was to advertise for the teachers nationally. However, the likelihood of industrial trouble, at a time when the teachers union was exercising its political muscle over various issues, ruled out the national recruitment of teachers for the Project. Therefore, early childhood teachers currently employed by the NSW Department of Education and working in the western region of Sydney were invited to apply for positions in the proposed programs. From the subsequent list of applicants the infant mistresses of the Project schools and members of the Project team extensively interviewed all the teachers considered to have potential. Apart from the criteria mentioned above, other characteristics considered during the interviews were the judged enthusiasm for involvement in the Project, the likelihood of commitment for at least three years, and general personality factors. In addition the applicants were asked to complete a 'Teacher Information Questionnaire' involving the following areas: educational philosophy and values, teaching style characteristics, pupil control techniques and educational objectives. The responses to this questionnaire were analysed using cluster analysis techniques to determine whether there were any deviant patterns of responses of the majority of the applicants. The analyses of these data did not reveal any isolated response patterns. Twelve teachers were selected by this procedure to be involved in the implementation of the five preschool programs. These teachers were given leave to undertake a three-month inservice program on early childhood education at Macquarie University.

Perhaps the greatest mistake made was the selection of a male teacher for the implementation of the Home-based Program. Our desire to involve a male teacher in early childhood programs overshadowed our qualms about using him in that program. Subsequent experience quickly indicated that the regular visits of a male to homes, when the male members of those families were absent at work, was not well received in the community. Fortunately, both the male teacher and the Project staff simultaneously realized that this was a potential problem and the teacher was replaced by a woman teacher who volunteered for the Home-based Program.

It was inevitable, given the variety of factors that can influence teachers to transfer or seek leave, that teachers had to be replaced over the four-year period. Overall, approximately one-third of the teachers were transferred for personal or family reasons or were granted accouchement leave. While the search for suitable replacements caused immediate problems, these replacement teachers soon fitted into their new roles. Undoubtedly having program assistants continuously involved with the development and implementation of the programs enabled the newer teachers to fit into the on-going programs without undue difficulty. To assist them with their development formal and informal inservice programs were run throughout the years.

Subsequent recruitment of teachers for the Kindergarten and Year 1 classes were undertaken within the Project schools by the infant mistresses and the Project staff. To accomplish this, staff meetings were held with all the infants teachers, during which the Project's aims and practices were outlined and teachers were invited to visit Project classrooms. The final selection was made from teachers who had volunteered by the infant mistress and the program assistant in the school concerned. Unfortunately, teachers recruited as replacements or as teachers for the Kindergarten and Year 1 classes were not able to attend a similar inservice course to that provided for the original group of preschool teachers. This provided additional burdens for the teachers and program assistants, as their training was provided before and after school hours, as well as during the day. Table 2.1 details the characteristics of the teachers working in the Project.

The teachers aides were selected by the infant mistresses and

Table 2.1 Characteristics of Teachers involved in the Project 1977-1979

Variable	Program				
	Cognitive	Competency	Contemporary	Behaviourist	Home-based
No. of teachers per program					
1977	2	2	2	2	4
1978	2	1	1	2	-
1979	2	1	1	2	-
Mean years of teaching experience prior to beginning in Project					
1977	2.2	5.5	7.0	6.5	6.75
1978	2.0	3.0	1.0	3.0	-
1979	2.0	2.0	19.0	9.0	-
Qualifications of teachers					
1977 BA,DipEd[a]	1	-	1	-	1
Dip Tchng[a]	1	2	1	2	3
1978 BA,DipEd[a]	-	-	-	-	-
Dip Tchng[a]	2	1	1	2	-
1979 BA,DipEd[a]	-	-	-	-	-
Dip Tchng[a]	2	1	1	2	-

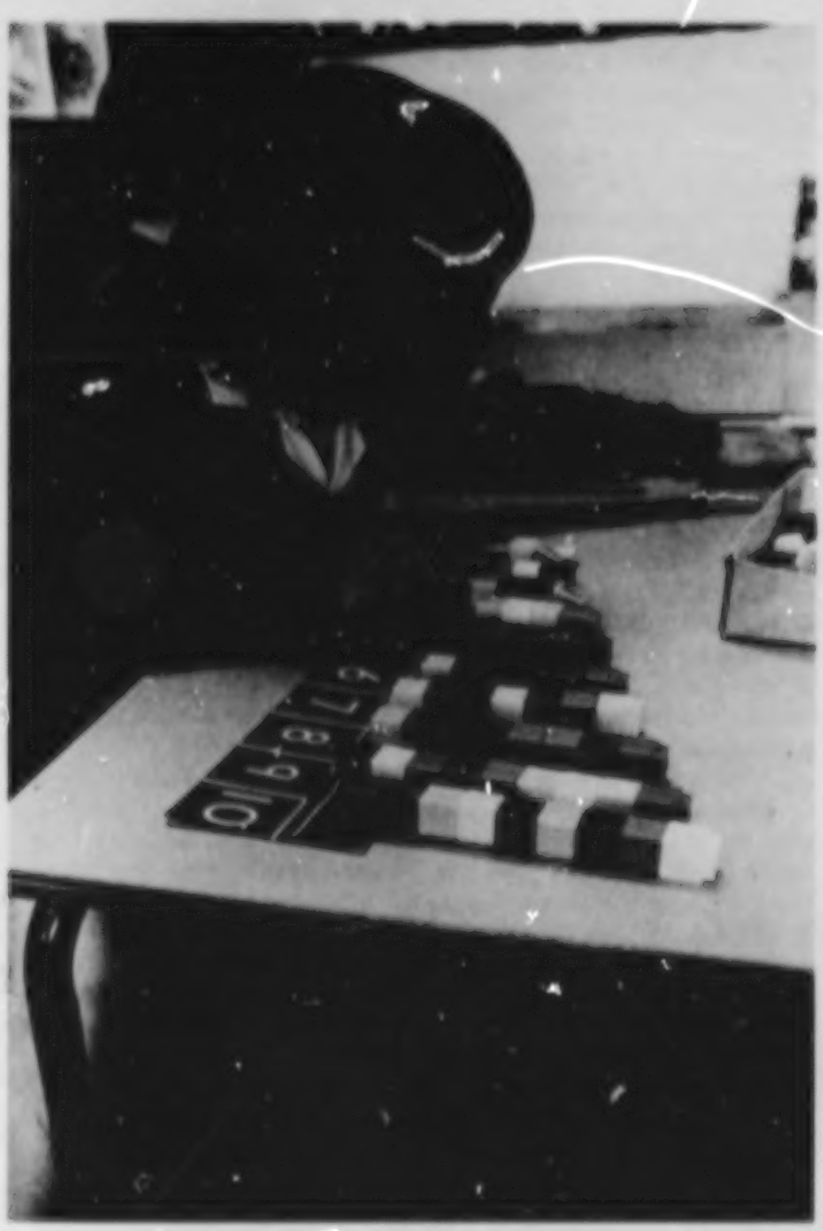
a Or the equivalent

teachers from mothers living in the area who wished to be appointed to the positions. These aides were untrained in any formal sense for child-care positions but a number soon enrolled in a technical college course designed to train child-care assistants. The aides were continually employed over the years of the Project's operation, reflecting both their capabilities and enthusiasm for the positions, and they played key roles in the implementation of the programs. The care and skills they brought to their tasks were continually reinforced by the ongoing inservice activities of the program assistants and the teachers.

As the basic theory of programs to be developed and implemented in the Project was for the most part unknown to the selected teachers, teacher training was an important continuing element in the Project's activities. Apart from instruction in pedagogical aspects of the programs, the teachers had to be guided in the development of their programs, sensitized to Project goals and activities such as parental involvement and high-school student programs, and informed about the nature and purpose of the various evaluation activities. The twelve original teachers selected for the implementation of the preschool programs attended a three-month inservice course at Macquarie University during June–August 1975. During this course the opportunity was taken to review current practical and theoretical developments in early childhood education, to acquaint the teachers with the objectives and intended practices of the Project, and to provide sufficiently detailed information about the curriculum and teaching styles inherent in each of the five programs. This course involved Project staff and members of the Schools of Education and Behavioural Sciences at Macquarie University. In addition, a consultant worked with the Project staff and teachers to develop an appropriate model to guide future evaluation activities.

As well as providing teachers with detailed information about the programs, it was intended to use the training period to enable the teachers to choose the programs with which they wished to be associated. Fortunately, no clashes occurred over the choice of the programs among the teachers. Letting teachers and school administrators choose whether or not they wished to be involved with specific Project activities was a procedure that was subsequently followed on all occasions. The price paid for such an approach is one involving many hours of providing information, stimulating discussion and general public relations activities. Nevertheless, it was regarded as an essential component of our operational methods.

With the replacement of some of the teachers for reasons previously cited, it was necessary to provide 'on the job' training for the new teachers. Generally the program assistants did this before and after school hours, as well as providing specific help during the teaching day. Having teachers, aides and program assistants to help model classroom practices and pedagogical techniques greatly assisted the indoctrination of the replacement teachers. The use of video equipment to monitor teachers' behaviours, both in the centre-based and home-based programs, proved to be invaluable. Process data collected over the years indicated that the replacement teachers performed as well as the original teachers in the implementation of the programs. Similar procedures were used to train the teachers who had volunteered to implement the programs in Kindergarten and Year 1. Fortunately these teachers were able to spend some time with the program assistants in curriculum-planning activities prior to the beginning of the school year. However, it should be stated that this period of planning was inadequate compared with the amount of inservice time allocated for the original group of teachers. Having to conduct inservice activities before and after school hours created real difficulties, but it did suggest that the willingness of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teachers to devote maximum efforts to these sessions may have lessened some of the disadvantages of this imposed system.

Throughout the years of the Project's operation, regular half-day inservice sessions were held. The purpose of these sessions was to enable teachers from the various programs to meet together to share general ideas and practices, to discuss issues of general importance to all involved with the Project, to detail evaluation intentions and interpret data previously collected to all teachers. The value of such sessions cannot be overstressed for there could have been a tendency for the program teachers to feel relatively isolated from the main thrust of the activities. Undoubtedly more numerous meetings would have greatly benefited all parties, but the educational authorities limited such meetings to one per school term. At the end of each year full-day inservice sessions were held for school and regional administrators were the results of the Project's activities were explained and discussions were held about proposed future developments.

Child Characteristics

When the preschool programs began, parents were invited to enrol their children, provided the latter had attained a minimum age of three years nine months. For the centre-based preschool, the children had to attend for five days a week at either the morning or afternoon session. Each session lasted two and a half hours and up to a maximum of forty children could be enrolled in each session. Two teachers and two aides cared for the children in each centre-based program. Parents of the children in the Home-based Program similarly volunteered to enrol them. Each Home-based teacher had the same number of families enrolled (that is thirteen to fourteen) and arranged with the parent the time for the weekly visit to the home.

In many ways, to place age limits on the enrolment in programs such as the Home-based Program can decrease their potential effectiveness. Research (cf. White et al., 1973) has highlighted the value of working with children younger than those enrolled in the Project's Home-based Program. However, governmental regulations limited the lower age that children could be enrolled to three years nine months. This did not prevent the home-based teachers from simultaneously working with younger siblings of the target children.

After the preschool years, the majority of the children were enrolled in the Kindergarten classes in the same school. (While Kindergarten is not legally the first year of schooling, prevailing practice makes Kindergarten the first year of formal schooling in NSW schools.) These preschool children were joined by children who had not attended any preschool classes in the previous year. The distribution of preschool and non-preschool children in the various Kindergarten classes is shown in chapter 5. The child/adult ratios in Kindergarten and Year 1 classes were larger than in the preschool classes, as one teacher was allocated to a maximum of thirty-two children. Fewer teachers aides were available to Kindergarten and Year 1 teachers, but the continuous involvement of volunteer parents in these classes helped teachers to individualize instruction.

In all preschool programs there were fluctuations in attendance due to the voluntary nature of enrolment, the onset of numerous outbreaks of epidemic childhood diseases and the movement of families in and out of the area. For the Kindergarten and Year 1 classes, school attendance was, of course, compulsory. However, the factors mentioned previously still affected school attendance. Table 2.2 details the demographic characteristics of children enrolled in the three years of the Project. The strongest feature of the program data presented in Table 2.2 is the relative homogeneity of those demographic variables which showed no significant differences among the listed variables.

The school, teacher and child characteristics introduced in previous sections are summarized below.

1 Five primary schools in Mt Druitt participated in the Project. Each school established a different preschool program which, in the case of the four centre-based preschools, continued into Kindergarten and Year 1 classes in the same school.

2 Each centre-based preschool had potentially the same child/adult ratio of forty children to four adults per session. Children attended either the morning or afternoon session for five days per week. The Home-based Program was staffed by four teachers, each enrolling thirteen to fourteen families. The Kindergarten and Year 1 classes were staffed by teachers on the prevailing departmental ratio which was one teacher to a maximum of thirty-two children.

3 Enrolment in the preschools was voluntary. The only stipulation related to a minimum age of three years nine months and regular attendance for five days per week at either session.

4 Each program had a program assistant associated with it who supervised program development, implementation and evaluation and acted as a general educational adviser.

5 The school administrative arrangements for each program were similar.

6 The same amount of time was available to the advisers, teachers and aides for planning.

Table 2.2 Project Children's Mean Ages, Mean Rating of Father's Occupations and Position of Children in Families[a]

Variables	Experimental					Comparison
	Cognitive	Competency	Contemporary	Behaviourist	Home-based	
Mean age of child at entry (in years)	4.0(.11)	3.9(.19)	4.0(.20)	4.0(.27)	4.0(.27)	3.9(.22)
Mean rating of SES fathers' occupations[b]	5.5(1.7)	5.3(1.6)	5.3(1.5)	5.6(1.5)	6.2(1.6)	5.6(2.2)
Mean no. of children in family	2.6(1.1)	3.1(1.6)	2.5(1.0)	3.0(1.0)	2.9(0.9)	3.1(1.1)
Modal value of position of children in family	2	1	2	3	3	2

[a] Standard deviations given in parentheses
[b] Rating based on Congalton's (1969) *Status Rankings of Occupations in Australia*, and rating scale ranges from 1-7.

7 Each program actively encouraged parents to participate in daily events.

8 All teachers and aides volunteered to be associated with the Project.

9 The teachers chose the program with which they wished to be associated.

10 A three-month inservice course was held for the original group of preschool teachers. All the subsequent teachers and aides were trained 'on the job'.

11 Continuous inservice training within programs was provided by the program assistants.

12 Project inservice sessions were held every term, and sessions with school and regional administrations were held at the end of each year. These sessions were supplemented by regular meetings of the Field Committee during which reports to parents and administrators were made.

Overview of the Project's Development

The Project commenced in April 1975 with the appointment of the Field Director and the subsequent recruitment of the Project staff. By May 1975 all the initial group teachers had been recruited and these teachers undertook a three-month training course at Macquarie University until September 1975. The preschool buildings were occupied in October 1975 and from this time until the end of 1976, the *developmental* preschool children were enrolled. During this period the opportunity was taken to train staff to develop programs and to try out different evaluation measures.

The *experimental* cohort of children, on whom all the data presented in this book are based, began their preschool year in 1977, entered Kindergarten in 1978 and Year 1 in 1979.

3

The Setting

Background to the Area

The setting for the Project was Mt Druitt, a new low-cost public housing estate to the west of Sydney, Australia, (see map, Figure 3.1). Prior to 1966 Mt Druitt was a small rural town just beyond the western fringe of metropolitan Sydney, forty kilometres from the city centre. It consisted of approximately 1000 dwellings and 3000 inhabitants.

The area had been first settled in 1821 when the Governor, Lachlan Macquarie, rewarded the endeavours of Major George Druitt as the colony's Chief Engineer by giving him a land grant there. It was an area which was relatively flat, and suitable for grazing sheep and cattle. Ten years later, James Whalan was given a grant of some 300 acres by Governor Darling. Construction of the railway line from Parramatta to Penrith by 1863 ensured the future of the small village at Mt Druitt. Over the next one hundred years the original large land grant was gradually subdivided into smaller rural blocks on which people raised a few cattle, pigs and poultry, or grew fruit and vegetables to supply the ever increasing needs of metropolitan Sydney. Growth was relatively slow.

In 1960, the State Minister for Local Government announced that a new town would be established in the Mt Druitt area to move employment and commercial facilities away from the metropolitan centre. The development of this complex was necessary to cater for the rapid increase in Australian population following World War II. Home-seekers, especially those on low incomes, were finding it difficult to obtain homes, and only a massive injection of government funds could overcome this shortage. The site was chosen primarily for its proximity to existing major road and rail links and because of the availability of a large area of gently undulating land. The original plan was extended in 1968, with an even larger development being envisaged. The

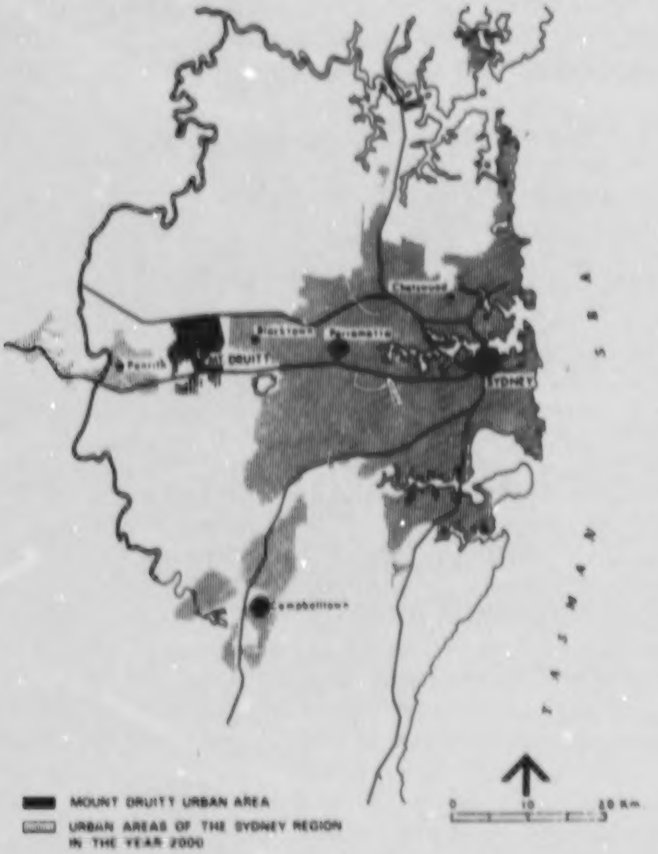

Chatswood
Blacktown
Parramatta
Penrith
MT DRUITT
SYDNEY
Campbelltown
TASMAN SEA
MOUNT DRUITT URBAN AREA
URBAN AREAS OF THE SYDNEY REGION IN THE YEAR 2000
0
10
20 Km

Figure 3.1 Mount Druitt in relation to the Sydney Region

government, through its agency the Housing Commission of New South Wales, intended to build a large housing estate to meet the needs of low-income families who could not afford to build their own homes.

It was believed that the provision of a large workforce in the area would encourage industry to follow, providing local employment for the new residents. Ironically, by 1977, while the housing development was virtually complete and the population had soared to over 50 000, the anticipated commercial and industrial development had barely commenced.

Development of the Mt Druitt Housing Estate

The planning of the new housing estate was on the basis of distinct residential neighbourhoods, each forming a catchment area for a local primary school. The neighbourhoods, in approximate order of construction, are Whalan, Tregear, Lethbridge Park, Emerton, Dharruk, Blackett, Hebersham, Hassall, Willmott, Shalvey and Bidwill. The Project was involved with preschools in the suburbs of old Mt Druitt, Whalan, Dharruk and Bidwill as indicated in Figure 3.2.

Land was made available for a wide range of community facilities and areas were set aside for open-space activities. The extent to which these facilities existed and were used will be discussed later. Emphasis was placed on minimizing conflict between vehicular and pedestrian traffic. Extensive use was made of culs-de-sac, and residential streets were designed to discourage the through flow of traffic. A system of pathways linked with underpasses provided access to a large number of areas, greatly reducing the need for pedestrians to cross major roads. The Commission expressed their belief that the plans for sub-division, the provision of a variety of housing designs and non-uniformity in the siting of buildings:

> must all aim at the eventual emergence of a truly pleasant overall neighbourhood development made up of attractive streets, conveniently situated amenities and possessing an intangible 'something' that will maximise opportunities for residents to achieve a sense of 'belonging'. (New South Wales Housing Commission, 1978)

The first of these homes were built around Whalan and were for the most part of separate single-storey brick veneer or fibro-cement construction. A few blocks of residential apartments followed to provide accommodation for single-parent families and elderly people. Farming activities had already denuded the area of trees, detracting greatly from its aesthetic appeal as a residential area. Time has partially remedied this. Schools were soon opened to cater for the rapidly expanding school-age population, but initially relatively few shops appeared. The Commission extended its building program and soon the neighbourhoods of Emerton, Lethbridge Park, Tregear, Dharruk, Blackett and Hebersham were established, again consisting for the most part of single-storey homes. Schools were rapidly built and occupied. Often, however, children were accommodated in temporary classrooms as the building programs did not keep pace with the enormous growth in school enrolments.

By 1977, when the last neighbourhoods were being built, rapid escalations in building costs forced the Commission to abandon its policy of free-standing, single-storey construction for the more economical two-storey attached dwellings and larger apartment blocks.

Parallel private development occurred on a much smaller scale in some of the neighbourhoods. By 1976 the total number of dwellings stood at 11 614 of which 9140 had been built by the Housing

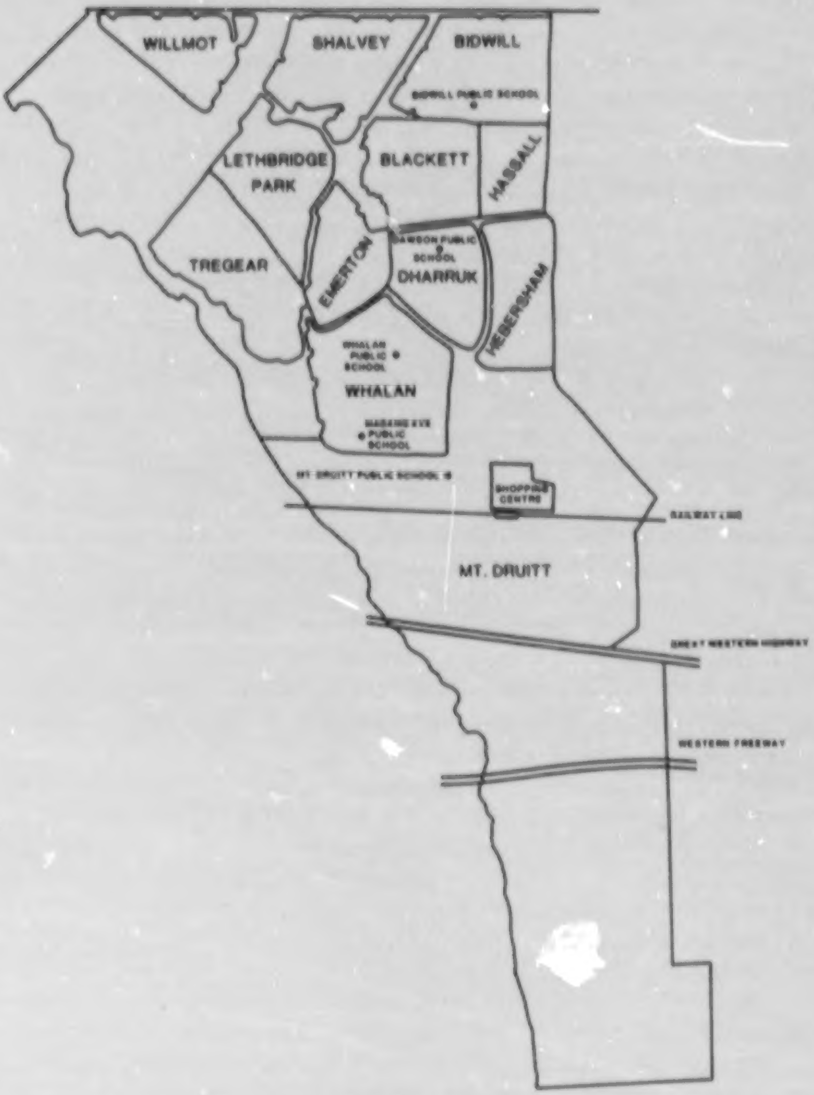

WILLMOT
SHALVEY
BIDWILL
BIDWILL PUBLIC SCHOOL
LETHBRIDGE PARK
BLACKETT
HASSALL
TREGEAR
EMERTON
DAWSON PUBLIC SCHOOL
DHARRUK
HEBERSHAM
WHALAN PUBLIC SCHOOL
WHALAN
MADANG AVE PUBLIC SCHOOL
MT DRUITT PUBLIC SCHOOL
SHOPPING CENTRE
RAILWAY LINE
MT. DRUITT
GREAT WESTERN HIGHWAY
WESTERN FREEWAY

Figure 3.2 Neighbourhoods and Project Schools in Mt Druitt

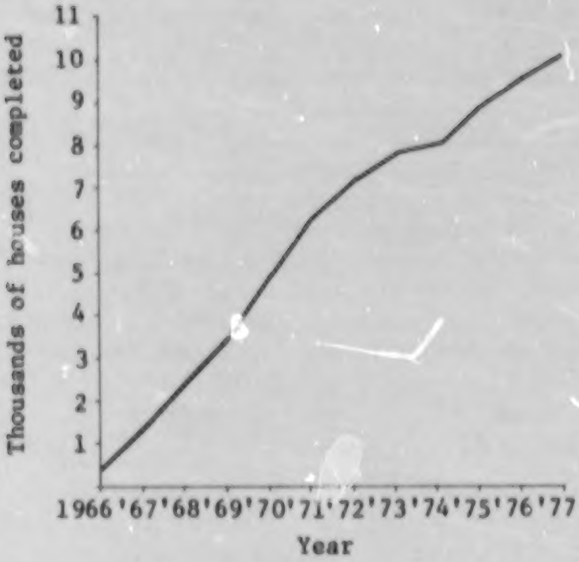


Figure 3.3 Progressive Totals for Numbers of Houses completed by the Housing Commission

Commission and 2474 by private developers. The rate of growth of Mt Druitt is illustrated very clearly in Figure 3.3.

Disadvantage in Mt Druitt

The impressive rate of building was unfortunately not matched by the development of commercial and community facilities. The impact of these delays was magnified by the geographical isolation of the new housing estate, situated forty kilometres from the centre of Sydney, and by the socio-economic characteristics of the residents, who were thus doubly disadvantaged.

The concept of disadvantage referred to here does not only embrace the traditional concept of poverty as its major criterion but follows the concept presented in the introduction to this study. People may be classified as disadvantaged in Australian circumstances, when for some reason they are unable to participate equally in community functioning. This basic definition gives rise to the following readily identifiable groups of people within the Mt Druitt community:

1 the economically disadvantaged who are unable to participate in paid work owing to
  (i) unemployment, sickness or age,
  (ii) mental or physically handicapped conditions, and
  (iii) being unmarried mothers, deserted and/or widowed or other persons looking after young children;
2 the educationally and culturally disadvantaged who are unable to participate in or make use of services owing to
  (i) ignorance of their existence (particularly migrants);
  (ii) the non-existence of services in their area (isolated people);
  (iii) time-consuming household commitments (many women);
  (iv) personal characteristics which render unsuitable the services offered at present, e.g. migrants with little or no English, children with limited language skills, people with mental or physical handicaps and people who feel alienated from the community; and
  (v) the lack of necessary finance.

The population of Mt Druitt, because of the predominance of welfare housing in the area, has a large number of people in each of the above categories. Entry qualifications for Housing Commission accommodation means that *all* new residents are economically disadvantaged, since in order to qualify for houses people must have a special housing need and insufficient means to solve their problems without help. The special housing need is seen to exist when:

1 parents and children share one bedroom;
2 families, aged couples or single pensioners share their accommodation with another family;
3 present accommodation is condemned as unhealthy or dangerous;
4 a family or couple live apart because they cannot afford accommodation where they can live together;
5 a family is facing eviction for reasons other than inability to pay rent or unsatisfactory conduct;
6 a person is extremely ill and rehabilitation depends on improved accommodation in a new area;
7 the tenants are unable to pay high rents.

People came from many parts of the State, though the greatest percentage were from the Sydney metropolitan area. Initially they were given the choice of either buying or renting their homes, and many took advantage of the former option. In a sense the economic disadvantage is removed, or at least partially ameliorated, as soon as entry is gained to this low-cost, government subsidized housing. However, many other forms of disadvantage remain or are even increased by entry. Cultural and educational disadvantage persist due to the relative non-existence of services, individuals' inability to participate due to personal deficits, the

role of women in households and lack of finance for certain pursuits. Employment opportunities for women and school-leavers are very restricted, and most people find difficulty in obtaining local employment.

Living in Mt Druitt—1968

A more detailed look at what it was like to live in Mt Druitt for the earliest residents will clearly illustrate the nature of their disadvantage. The homogeneity of the population was ensured by restricted entry. Most breadwinners were employed in semi-skilled or unskilled occupations and had to travel long distances daily due to the continuing lack of industrial development in the area. Mothers with young children were left, isolated by infrequent public transport, in an area with inadequate shopping facilities, no preschools, limited health care and no social or recreational facilities. Separation from close relatives and long-standing friends created both emotional and practical problems. The closest large shopping complex was approximately ten kilometres away, and there were no local social clubs of the type these people would have been accustomed to in the rest of suburban Sydney.

The stigma attached to living in Mt Druitt arose primarily from its low-cost housing status, but was greatly increased in the early days by the media's tendencies to highlight its already disproportionate share of human problems and tragedies. For instance, it was not unusual for school-leavers to be rejected by prospective employers as soon as they admitted to living in Mt Druitt.

Life was more difficult than it should have been for the earliest residents, whose very presence was indicative of their greater-than-average dependence on community facilities for anything beyond the

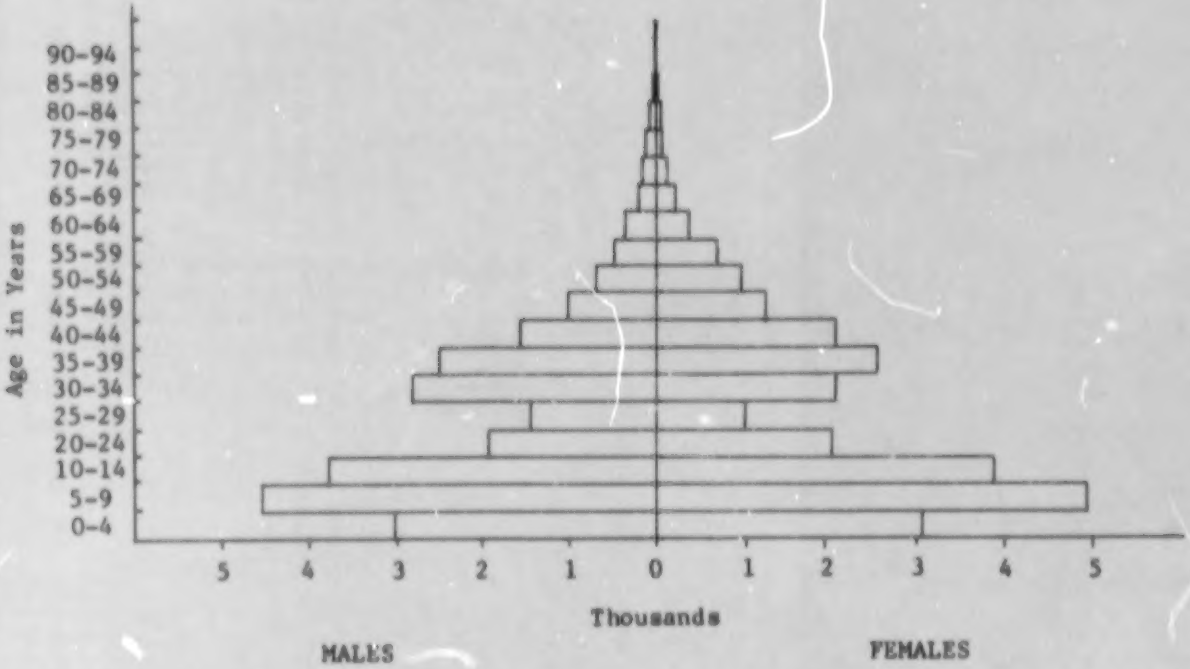


Figure 3.4 Age and Sex Distribution of the Population of Post Code Area 2770 (Mt Druitt) as at 30 June 1976

bare necessities of life. Arguably, any new area will have teething problems, but many of Mt Druitt's difficulties may not have arisen at all had successive governments and agencies allocated sufficient human and financial resources at the right time.

The new neighbourhood schools had high enrolments, with class sizes averaging around thirty-five children. Large numbers of equivalent classes at each age level were quite common with the larger schools having up to ten Kindergarten classes. The teachers were mostly young, inexperienced and departmentally 'bonded', since the Department of Education had difficulty in finding sufficient teachers willing to work in the area. Without a doubt, the media-generated reputation discouraged teachers from accepting jobs there. Schools generally became the meeting place for the few emerging community organizations and school personnel actively initiated the formation of others.

Medical care was hard to obtain as there were few general practitioners, a situation which was not to be remedied for some years. The churches found it difficult to provide the types of assistance they wished, due to the lack of human and financial resources. Few child-care centres were available. Generally, if mothers wished to obtain paid work and were lucky enough to find it, a large proportion of their salaries went to unofficial backyard child-minders. For mothers staying at home, television became the predominant entertainment as there were no other attractions in the area apart from isolated visits by travelling circuses and so on.

All in all the situation facing residents in 1968 was quite dismal from a community viewpoint, as the concentration of efforts by the various government departments centred on the building and occupation of homes at the expense of encouraging the establishment of community networks or providing any form of facilities.

Living in Mt Druitt—1977

In many ways, life in Mt Druitt ten years later contrasted sharply with its former self, but many problems persisted. The last big influx of new residents into the area took place in 1977; the original generation of children had grown up and was leaving school and looking for employment.

The Australian Bureau of Statistics Census taken on 30 June 1976 confirmed the homogeneity which existed in terms of age, birthplace and occupation (see Figures 3.4 to 3.6). The general picture portrayed by these statistics was of a predominantly young, Australian-born population, organized as family units with children, and employed in semi-skilled and unskilled occupations. Comparatively few non-English-speaking migrants were living in the area. As might be expected, permanently separated, divorced and widowed women far outnumbered

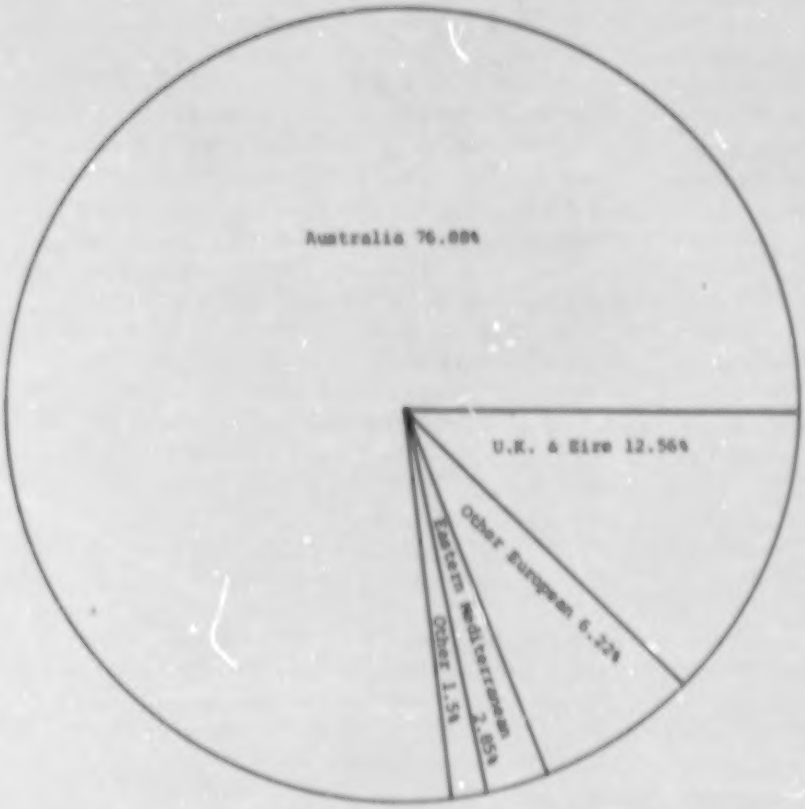


Figure 3.5 Birthplaces of the Mt Druitt Population as at 30 June 1976

men in a similar situation. The majority of the population (76 per cent) had left school by the time they were fifteen years of age. These generalities of course mask many differences. Families with ten years standing and working offspring did not face the hardships that 'new' families settling into the area had once found.

Many influences have direct and indirect effects upon the quality of life a community enjoys: both recreation and employment facilities have direct effects, as does the incidence of disease. Obviously with any growth in population more and more jobs are needed. Unfortunately, as has been indicated previously, by 1977 the area had still failed to attract any light or heavy industries. The industrial estate, rather than supporting more and more job opportunities, supported weeds. In February 1978 there were 2176 persons receiving unemployment benefits within the area. While it is difficult to determine the exact implications of this figure given the unusual age composition and characteristics of the population, there is no doubt that the greatest percentage of this number was under twenty-five years of age. In the event of no improvement in the economy, the unemployment figures were expected to increase as the major population cohorts left school and started looking for jobs. The majority of those who were employed (Figure 3.6) were still in semi-skilled or unskilled jobs and had to travel at least forty kilometres a day to and from work.

When the area was first established medical facilities were more conspicuous by their absence than presence. There was an increase in the number of general practitioners in the area between 1968 and 1977 as a direct consequence of the introduction of Medibank, a government-sponsored medical scheme which virtually ensured the payment of fees for all services rendered. Previously, general practitioners working in areas of a lower socio-economic status sustained a steady proportion of bad debts. The Health Commission of NSW, while planning to build a hospital, opened a Polyclinic in 1977 which provided a range of medical, paramedical and social services. Free dental services were provided for those families who met the means tests. Each school had a community nurse to act as an initial reference person for medical, social and behavioural problems. Cases were referred either to general practitioners or to the Polyclinic personnel for further treatment. Prior to the establishment of the Polyclinic, the majority of specialist referrals were made to specialist medical personnel working up to seventy kilometres from the area. Table 3.1 lists common problems encountered by the Polyclinic staff between July and December 1977.

The high percentage of behavioural and educational problems is partially explained by the active seeking out of such cases by the community nurses through their contact with the schools.

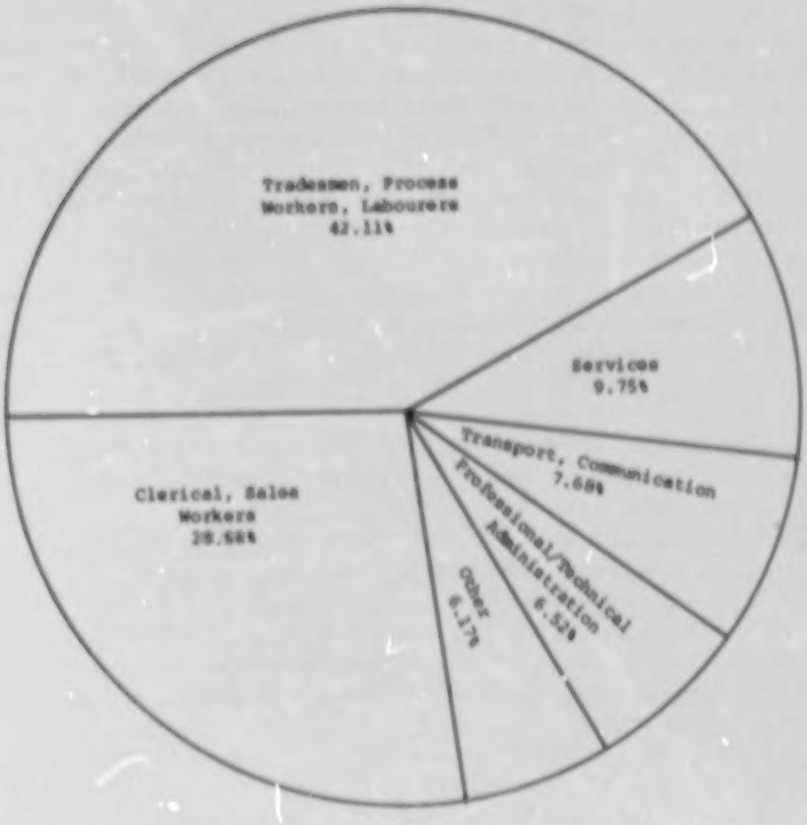


Figure 3.6 **Percentages of the Workforce in the Australian Bureau of Statistics Major Occupation Categories**

Table 3.1 Common Presenting Problems for Persons less than 15 Years of Age, Mt Druitt Polyclinic, July-December 1977

Presenting problem	% of total presentations for persons less than 15
Behaviour problem	31
Educational problem	7.5
Bronchitis and asthma	8.2
Parent/child problem	3
Family disruption	3
Other problems	47.3

The quality of life gradually improved over the ten years from 1968 to 1977, with the formation of formal and informal social networks and the provision of a large regional shopping centre, library, sporting amenities, hotels, churches and public transport. For people who wished to become involved in community activities there were an increasing number of agencies operating. Generally school principals allowed the community to use their school resources but the extent of vandalism present in the area indicated that at least some members of the community still regarded the provided facilities as 'belonging to them and not ours'. The churches and local government agencies had increased their services through the provision of day-care centres and the employment of social workers. Scouts and guide groups had become more prevalent. Indeed, a large number of community sporting and social clubs and self-help groups were beginning to cater quite well for the needs and interests of women and younger children. The Housing Commission and the local council provided small parks equipped with swings and climbing facilities suitable for young children. The greatest need still unmet in 1977 was for facilities for adolescents and young adults, who had become the greater proportion of the population. A number of attempts were being made to organize social events for adolescents but with limited success. Commercial entertainments favoured by this age group were still not available there. Teenagers, handicapped by limited mobility, still had great difficulty finding activities which would provide the recreation and social contact so essential for this age group. Boredom often found release in socially unacceptable forms, adding to Mt Druitt's unenviable reputation.

Educational Provisions within the Area in 1977

Educational facilities needed to be provided immediately for those five years and older. There were fourteen primary schools (for children from five to twelve of age) with enrolments ranging from 600 to 2000 (six had enrolments greater than 1000). There were six secondary schools catering for twelve- to eighteen-year-olds.

Two factors largely responsible for the Mt Druitt schools being classified as disadvantaged were:

1 the housing segregation by socio-economic level brought about by the Housing Commission's entry requirements, which gave rise to a concentration of children of relatively poor parents; and
2 a general lack of amenities in the area because it was both new and relatively poor.

For the most part the teachers in the schools in the area had recently graduated from universities or colleges of advanced education. The majority of them taught in Mt Druitt because they could not obtain 'more favourable' posts or had been sent there by the NSW Department of Education to which they were still financially bonded. The unwillingness of teachers to teach in the area when it was first established was a reflection of the size of the schools and their classes, the relative lack of equipment and, perhaps above all, these schools' grapevine reputations. Fortunately, by 1977, a few teachers were actually living there, but the area still seemed unlikely to attract a large middle-class population.

Until 1975, children of preschool age in the area had generally not been able to attend preschools as there had been insufficient places available. There were two day-care centres and one preschool centre in existence so that competition for admission was strong. The flow of funds created by a change in policy by the Federal Labor Government in 1974, coupled with the Project's initiation, enabled the NSW Department of Education to build four preschools at Mt Druitt, Madang Avenue, Whalan and Dawson Public Schools and to establish a Home-based Program at Bidwill Public School. These were the sites included in the Mt Druitt Early Childhood Project, and attendance at these was voluntary for children and no fees were charged. Later on, two more fee-paying preschools were established, at Hebersham and Shalvey, by the Kindergarten Union of NSW.

In one respect Mt Druitt was better off than other areas. Preschooling, a non-compulsory sector of education, was relatively widely available in Mt Druitt by 1977. At the time of the Project's inception approximately five per cent of four-year-olds in the State of New South Wales were attending free preschools but places were available for forty-five per cent of this age group in Mt Druitt.

Other non-compulsory aspects of education were also developing. After-school programs were being offered at some schools, and some sporting organizations, churches and the scouting movement provided other activities.

Above all else, Mt Druitt in 1977 was a community which had developed extraordinarily quickly. Services and facilities had lagged behind population growth and the area as a whole lacked any identifiable community heart. The deceleration in population growth was expected to assist in solving many of the immediate problems. Certainly the problems faced by incoming inhabitants in 1978 did not correspond with those faced by the original settlers. However, many of the mistakes of the original planners inexorably remained. The overwhelming majority of its inhabitants still remained semi-skilled or manual workers living in an area providing few employment prospects.

4

The Educational Programs

The Project goals outlined in chapter 2 refer to the development, implementation and evaluation of five different early childhood programs in schools in the Mt Druitt area. (It is important to point out at this juncture that the term 'program' refers to the educational intentions and practices of the schools.) The following sections summarize the objectives and general methods followed in each program and then a brief discussion follows highlighting the main dimensions of all five. Prior to this, it is necessary to consider some general issues in preschool programming and to review the existing early childhood practices in Australia that influenced program selection.

An Overview of Programmatic Issues: Some Caveats

First, classrooms are complex interactive situations wherein adults and children perform varied and often competing roles (cf. Carew and Lightfoot, 1979). Of necessity, descriptions of educational programs generally fail to describe comprehensively the rich and varied interactions possible and this especially pertains to preschool classrooms which tend to be highly complex in their interactional patterns.

Second, within any classroom, not all children share common experiences. While program descriptions may portray the types of experiences provided within classrooms, they are at best generalized statements of intent. Moreover, recent studies investigating the percentage of 'time on task' among children in learning situations controlled by one teacher reveal a wide range of results (cf. Lee, 1980). Therefore to suggest that all children will be equally capable of assimilating the same learning experience negates the variability associated with human performance.

Third, however carefully teachers try, they treat children differently. Whether the variation in treatment takes the form of the amount of contact time, verbal and non-verbal reinforcers or punishers used or any of the numerous variables that characterize most teacher/learning situations, teachers do treat children differently (Doyle, 1977). The objective of the master teacher is of course to minimize as much as possible such variability in behaviour, but it is not possible to assume that teachers treat all children equally.

Fourth, while programs may be described as being different from each other, there is a great degree of commonalty among most early childhood programs. As Cooley and Leinhardt (1980) suggest, program evaluations have emphasized the differences between various programs rather than indicating their similarities. In reality, they argue, the differences among programs may more than likely reflect differences in degrees along common dimensions.

Program Selection

Prior to the 1970s there tended to be a uniformity of views and judgments concerning the ideal type of early childhood programs that Australian preschools and infant schools should provide. For example, Ashby (1972), in reviewing the development of early childhood education in Australia, claimed that Australian preschool centres focused the majority of their activities on social and psychomotor activities and generally did not stress the cognitive areas of the curriculum. This convergence of views was greatly perpetuated by the prevailing system of staffing each training college with its own more highly qualified and successful graduates. While no doubt many highly professional preschool centres catered for their middle-class enrolment more than adequately, there was a degree of inbreeding prevalent in the system. Consequently, the majority of Australian preschools had a 'sameness' about their objectives, learning experiences and classroom environments. Programs were theoretically based on the observation and study of individual children and featured free choice from among the activities and materials provided. Long uninterrupted play periods featured extensively in the daily activities of preschools and a small proportion of teacher-directed group activities were included in the overall planning. The approach was best described by Walker:

> The emphasis is upon helping the child to develop his own abilities and satisfy his own needs, upon understanding and guiding his feelings about himself, about other people and about the world around him, rather than upon the acquisition of knowledge and skills. (Walker, 1964: 445)

This approach suited children from middle-class backgrounds, for whom the majority of preschools catered. It did little to help various groups of disadvantaged children who were in need of specifically developed early childhood programs.

When the Head Start experiences began to have an impact in Australia, various individuals and groups developed or modified early childhood programs to assist disadvantaged children. These initiatives resulted in the establishment of programs which, among others, were based on language studies (Hart, 1973), Bereiter-Engelmann materials (de Lacey, Nurcombe, Taylor and Moffitt, 1973), and peer-teaching and parent-based programs (Grey, 1974). While such developments had direct and indirect influences upon the existing curricula, it was apparent that there was not a strong empirical base within Australia to guide early childhood educators and policy-makers. The advantage for evaluation offered by the conduct of a comparative study was one of the key factors influencing the Project's establishment.

Though there was not a strong theoretical and empirical tradition to guide early childhood educators in Australia, European and American writers and practitioners had published extensively in the area and were widely read. As in most other areas of education, these writers covered a wide spectrum of educational philosophies and viewpoints, ranging from classical Skinnerian behaviourism to the freedom implicit in the practices suggested by the writings of Carl Rogers. Apart from the different theoretical perspectives that influenced each of these writers and developers, it was evident that the characteristics that differentiated the various programs were the teachers' roles and the amount of structure present in the programs.

Using the extensive overseas literature available on early childhood education, it was possible to anticipate the outcomes of the particular programs and determine their suitability for Australian children. From this initial review it was decided to develop and/or implement programs which would reflect different theoretical approaches to child development. Four different categories of programmatic practice were explored and as a result behaviourist, interactionist, cognitive and eclectic programs were developed. It was also decided to evaluate the effects of a program in which parents rather than teachers were the educators. Basing this evaluation on a review of previous or contemporary early childhood programs enabled some forecasts to be made as to how the envisaged programs might influence children's cognitive and affective development. The implementation and evaluation of such programs in Australia would provide needed information for Australian educators. What had to be done was to select from each category the most appropriate program for the specific group of children, teachers and schools where the Project was to operate.

The choice of programs to develop and implement became a central issue during countless hours of negotiation and discussion. It is useful to review the criteria that influenced the selection of the programs, as they give insight into some of the collaborative aspects of the Project's activities. These criteria were:

1 the programs had to be considered educationally worthwhile by the Project personnel, university faculty and educators within the educational system;
2 agreement with the underlying philosophy and objectives of the program implemented at each specific school had to be reached by the relevant school administrators;
3 different approaches to early childhood education had to be represented in the program;
4 descriptive information about the programs had to be sufficient to enable them to be developed or modified, implemented and evaluated; and
5 replication of the programs in other schools had to be possible, should the need arise.

The general objective was to develop and implement programs that would be educationally worthwhile for all children enrolled in them.

At this point it is essential to consider in detail the implications of the third criterion of representing different approaches to early childhood education. Just how different is different? Many authorities have attempted to classify the differences among programs on numerous dimensions (cf. Bissell, 1972; Mayer, 1971; Parker, 1972; Weikart, 1972). However, such classifications are difficult to make and often artificially accentuate these differences.

The five programs selected for development, implementation and evaluation were:

1 a *Cognitive Program* derived from Weikart et al. (1971);
2 a *Competency Program* developed in association with teachers and parents in the area (Braithwaite, 1979);
3 a *Contemporary Program* reflecting the emphases of 'traditional' Australian early childhood programs;
4 a *Behaviourist Program* based upon Bushell's (1973) work; and
5 a *Home-based Program* similar to the Home Start program of the US Department of Health, Education and Welfare (O'Keefe, 1979).

Clearly, other programs could just as easily have been introduced; however, each of the above did meet the specified criteria.

The naming of the five programs may give rise to misconceptions. The names reflect the intent and/or emphasis behind the programs and it should not be assumed that a 'cognitive' program will not develop 'competent' children, or that cognitive development is not featured in a 'competency' program.

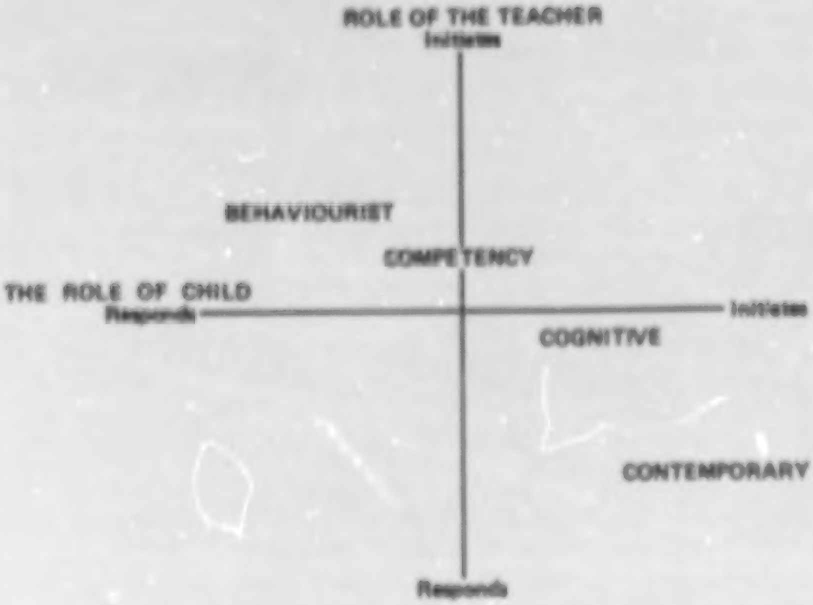


Figure 4.1 **Classification of Programs according to Weikart's (1972) Criteria**

Weikart's depiction of the relationship between two of the many dimensions of difference among programs is shown in Figure 4.1. The two dimensions he selected concerned the teachers' and children's roles within the classrooms. For example, Figure 4.1 illustrates that the Behaviourist Program was comparatively 'high' on the two dimensions of the teacher initiating and the child responding and is placed in the second quadrant. The Contemporary Program, emphasizing the children's initiations and the teachers' roles of facilitators/responders, is placed in the fourth quadrant. Again, it should be emphasized that there is a similarity among the intended practices of the different programs.

Introduction to the Programs

The following précis describe the programs as they were implemented in the five schools. They are not descriptions of the intentions of the original program developers, as it was often necessary to adapt the three programs based on overseas practices to meet local influences and developments. Throughout the Project's existence, procedures were followed to ensure that the programs mirrored the stated descriptions, and further information on these can be found in chapter 6. Further, the curricula for each program were articulated over three years. The benefits of such a comprehensive and articulated 'follow through' have been well documented by a number of writers (cf. Zigler and Valentine, 1979). Table 4.1 shows how the curriculum for the Competency Program was articulated over the three years.

The goals, contents and teachers' roles for the three years of each program for the preschool, Kindergarten and Year 1 classes are described in turn.

The Cognitive Program

This program was based upon the 'Cognitively Oriented Curriculum' developed by David Weikart in the 1960's (cf. Weikart et al., 1971). Though that program relied heavily upon the epistemological writings of Piaget, it borrowed quite extensively from the writings and ideas of other educators, such as Bereiter and Smilansky. It sought to improve disadvantaged children's cognitive development through verbal stimulation, involvement of children with their environment, promotion of socio-dramatic play and the fostering of direct interaction of children with their peers and with adults.

> The Cognitive Curriculum offered teachers
> (a) a conceptual model of child development within which children's day-to-day behaviour makes sense; and
> (b) a related set of educational goals and strategies which can be used to plan and evaluate systematically a developmental program for preschool-aged children. (Weikart et al., 1978b:6)

The Weikart program assumed that children learn more effectively when they initiate and regulate their own learning.

The program implemented in the Project, though based on Weikart's conceptions, differed in marginal ways from the programs specified by Weikart et al. (1971). For example, the teachers or aides did not institute any home visits during or after the sessions, as had been the practice in the original study. Further, some of the evaluation practices implemented followed suggestions put forward by Kamii (1971) concerning the evaluation of specific cognitive skills. Therefore, the program described in subsequent sections refers to the particular cognitive curriculum implemented in this study and does not claim to be an exact replica of the Cognitive Curriculum developed by Weikart.

Cognitive Preschool Program —Objectives

For children the program had the following objectives:

Table 4.1 Articulation of the Competency Program's Curriculum across Three Years

Curriculum areas	Curriculum content		
	Preschool	Kindergarten	Year 1
Language & communication	Labelling, explaining, describing, using social functions of language e.g. oral discussions, play, stories	recall, comprehending, predicting, interpreting, reading pre-reading, pre-writing, reading, writing stories, etc.	
Quantitative & relationship skills	Sorting, ordering, measuring, time, spatial relations eg. games, puzzles, toys	continuous quantity, sameness, conservation, measure, number recognition, mathematical processes (+ −) pre-number, structured mathematical material, mathematics from NSW curriculum	
Perceptual & perceptual-motor skills	Construction, copying, physical activities such as running, skipping, hopping gross and fine motor skills	pre-writing, pre-reading activities, discrimination by size, shape, colour, sound + gross motor skills program	
Problem-solving skills	Initiating, planning evaluating activities e.g. science, social sciences	draw conclusions, demonstrate realistic appraisal of own abilities and skills	
Pro-social Behaviours	Assume appropriate social behaviour, obtain attention, maintain attention, respect individuality of others		
Health & safety maintenance	Observe appropriate health behaviours, know appropriate safety behaviours, know about care of own health and safety		

1 the development of the logical thinking skills of classification, seriation, numeration, and perception of temporal and spatial relations;
2 the expansion of children's physical and social knowledge about the world;
3 the development of skills in representing knowledge and feelings using formal and expressive symbols;
4 the development of planning, organizational and evaluative skills for individual and group activities;
5 the improvement of personal communication skills and interaction abilities within groups;
6 the successful completion of self-initiated tasks; and
7 the development of fine and gross psychomotor skills.

While all children would not successfully achieve all of these objectives during their preschool year, the program aimed at improving children's abilities to some extent in all of the areas specified by the objectives.

Cognitive Preschool Program—Curriculum Content

The cognitive curriculum identified 'key experiences' designed to strengthen children's cognitive development. These experiences were:

1 active learning, e.g. direct exploration with all the senses, discovering relationships through concrete experiences, taking care of their own needs, and choosing materials, activities and purposes;
2 planning and evaluating, e.g. verbally articulating a plan, identifying the steps involved in carrying it out, and comparing what was actually accomplished with one's original plan;
3 using language, e.g. conversing about meaningful experiences with adults and peers, describing objects, events and relations, expressing feelings in words, having their own spoken language written down and read back, listening to stories, and telling stories;
4 representing, e.g. recognizing objects by sound, touch, taste and smell only, imitating actions, relating pictures, photographs and models to real places and things, role-playing and pretending, and drawing and painting;
5 classification, e.g. investigating and labelling the attributes of things, noticing and describing how things are the same and how they are different (sorting) and describing something in several ways;
6 seriation, e.g. comparing things and their attributes, arranging several things in order along the same dimension and describing the relations, and matching one ordered set with another;
7 number concepts, e.g. comparing number and amount, exploring

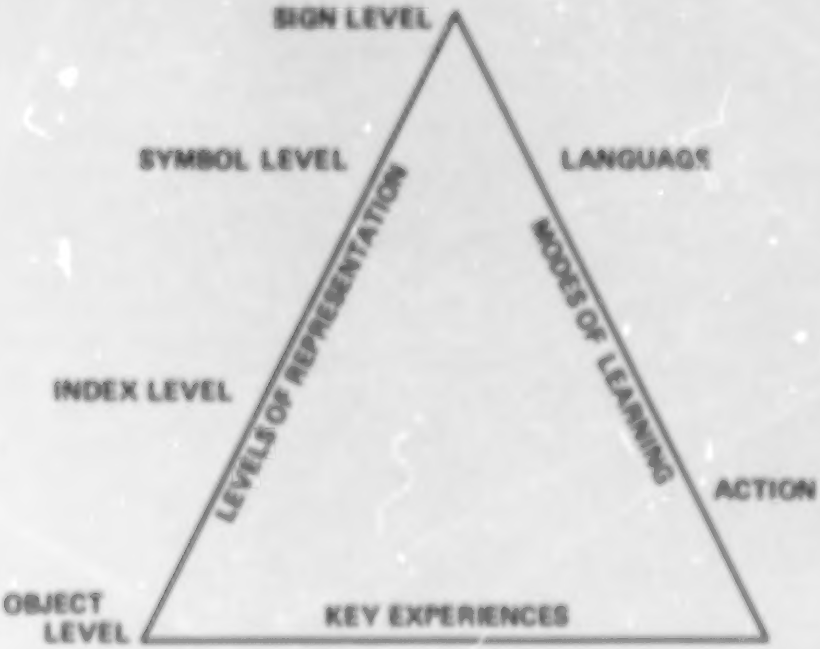


Figure 4.2 Cognitive Curriculum Framework (Weikart, 1971)

one-to-one correspondence, and enumerating objects as well as counting by rote;

8 temporal relationships, e.g. describing past events in words, anticipating future events verbally and by making appropriate preparations, describing the order of events, planning and completing what one has planned, using conventional time units, and observing seasonal changes; and

9 spatial relationships, e.g. fitting things together and taking them apart, rearranging things in space, observing things and places from different spatial viewpoints, and describing the position of things in relation to each other, and interpreting representations of spatial relationships in drawings and pictures.

These key experiences were integrated with two other aspects of curriculum content: the levels of representation and the levels of operation the children used. Weikart's representation of the interrelationships between these three facets of the curriculum is shown in Figure 4.2. Children's progress can be seen as the movement to the apex of the diagram as they develop their cognitive abilities through exposure to the key experiences in the curriculum.

Cognitive Preschool Program—Teachers' Roles

The teachers' roles in the Cognitive Program had to be carefully delineated since they were somewhat at variance with 'traditional' preschool teachers' roles. The teachers facilitated children's cognitive development through careful *structuring* and *sequencing* of learning experiences. Within the *structure* of the program, teachers established a specific daily routine that encouraged exploration, experimentation, discovery and social interaction. As well, activities were structured with regard to the children's levels of cognitive functioning. Moreover, teachers structured a classroom environment that:

> encouraged pupil activity in the form of pupil planning and self-evaluation, independent use of materials, and communication of discoveries to others;
> encouraged interaction among children in the form of co-operative projects, socio-dramatic play, group planning and discussions; provided a variety of natural materials to encourage the development of cognitive structures;
> permitted directed and independent activities to take place simultaneously; and
> had a daily routine that helped children develop awareness of time relationships and planning. (Weikart et al., 1971:26)

Throughout the daily routine the teachers interacted with the children in directed and undirected sessions.

In relation to *sequencing*, the teachers organized experiences, so that the children could proceed from the concrete to the abstract, and from simple to complex activities. Generally this necessitated the introduction of the following sequence:

> experience with real objects and events;
> recall of real object from cue (index level);
> representation of experience in a form that represents the real experience (symbol level); and
> representation of experience in a form that has no resemblance to real experience (sign level). (Weikart et al., 1971:29)

Each step in the sequence provided a foundation for the succeeding steps and represented a more abstract level of functioning (see Figure 4.2).

Cognitive Program—Kindergarten and Year 1 Objectives

The Cognitive Program's objectives in these year levels were based on those developed for the preschool program and provided for a smooth transition from preschool to the Kindergarten class. The objectives were conceived in the context of active experiences in the physical and social world and were originally based on the program developed by Weikart et al. (1974) for Program Follow Through. However, considerable modifications were made to the original Weikart program statements as a result of discussions and compromises made in the light of local needs and resources, and the formal school structures.

The objectives for the program concerned the development of children's abilities in the following areas:

Cognitive Areas

Logical knowledge—including association/classification, seriation/ordering/arranging, spatial and temporal relationships, number, production and causation;
Physical knowledge—properties and relationships between objects and events;
Social knowledge—social forms and practices; and
Representation—both expressive and formal

Social and Affective Areas
Co-operative and negotiating styles; and
Self-regulation of behaviour

Psychomotor Areas
Development of physical strength, co-ordination, balance and rhythm skills.

Cognitive Program—Kindergarten and Year 1 Curriculum Content

The curriculum in these two year levels was organized around the objectives of the program. For example, within the cognitive areas, activities aimed at developing logical knowledge were evolved through the use of commercially produced games and materials and selected aspects of the Nuffield and other environmental mathematics programs. Similar procedures were followed for the other areas listed with concerted endeavours made to interrelate learning experiences from the various subject areas of the curriculum. These included physical and social knowledge (mathematics, natural and social sciences), both expressive and formal representation through language, art/craft, music, movement, drama, reading, writing, and psychomotor development through gymnastics, games, movement and dance. Wherever possible these areas were organized around a theme, but teachers also planned sequenced learning experiences when the need arose in some areas as separate units.

Cognitive Program—Teachers' Roles in the Kindergarten and Year 1 Classes

A similar role to that of teachers in the Cognitive Program in the preschool was followed by teachers in the succeeding two year levels. While most teachers in the Kindergarten and Year 1 classes taught in team-teaching situations, as they did in the preschool program, there were a large number of children in each class. The teachers had to:

1 establish a consistent but flexible daily routine that included time for planning by children, time for individual and group activity, and time for recalling and reviewing the day's events;
2 arrange the room in a way that made sense to the children by dividing the room into several work areas, thus making equipment accessible;
3 provide for active learning by encouraging children to discover concepts and ideas for themselves;
4 help children to plan and carry out their own activities;
5 show children how to use all of their senses in investigating something new;
6 help children to experience new concepts physically, not merely in words;
7 use language as a tool for thinking by asking 'divergent' questions, and encourage children to express their ideas in words, to each other as well as to adults;
8 model language usage without correcting grammar or pronunciation;
9 respond to and expand children's remarks, and help children to learn new words for things and for relationships among things (concepts);
10 sequence activities from concrete to abstract by beginning each new unit or theme with a concrete experience, using real objects;
11 help children to represent objects and experience through art work, block building, use of toys in play, make-believe role-play; and
12 familiarize children through storytelling with the purpose of written language, the most abstract form of representation.

These procedures were followed every day, though the routine aspect of Weikart's program (plan-work-represent) was discarded by Year 1 teachers as being too artificial an attempt to order cognitive processes. Nevertheless, the teachers continued to ensure that:

1 child-initiated contacts between children and adults were frequent and more casual than formal;
2 activities in which children interacted primarily with materials were constructive, and a given activity was pursued over a period of time;
3 children demonstrated an ability to represent ideas at increasingly abstract levels;

4 children made choices for themselves, and these were respected by the adults in the classroom;
5 children chose some activities themselves and completed these activities without adult intervention;
6 children organized and carried out co-operative activities;
7 the use of materials in the environment was generally productive and rarely destructive; and
8 part of the classroom routine involved deliberate planning and reporting of activities by children.

The introduction and/or elaboration of materials was characterized by the children's physical involvement whenever possible. If involvement was limited to verbal activity, groups were kept small so that children had as much opportunity to participate as possible. In the process of learning, children communicated their ideas and information in a variety of tangible forms which demonstrated pupil progress.

The Competency Program

The Competency Program provided teachers with a set of specific goals or competencies to be attained by children. The competencies specified were drawn from the writings of Almy (1975), Anderson and Messick (1974) and Butler et al. (1975). The program was eclectic in its approach and reflected many of the philosophical assumptions inherent in traditional early childhood programs, but it organized and evaluated learning experiences by a much more systematic procedure than that usually followed. It did not assume that the teacher had to adopt a specific teaching style as, for example, in the Cognitive Program. Neither did it specify the educational materials to be provided, as is the case with Montessori programs.

It did require teachers and parents to identify the developmental areas in which the five-year-old children in the locality were not competent. This suggests that there was some normative or empirical yardstick by which the degree of competence of the targeted children could have been assessed. In fact, the competencies listed by Anderson and Messick (1974) were used as the normative base for the development of the program. These were summarized and presented to Kindergarten teachers and parents, who were asked to rank the areas in which they believed children should be competent at the time of entering Kindergarten. These rankings were then presented to infant mistresses and preschool teachers for evaluation in terms of their developmental and pedagogical appropriateness. A final list of competencies based on their comments was drawn up for disadvantaged four-year-old children in the local area. These competencies were then amplified into curriculum documents based on mastery concepts for use by the program's teachers.

Competency Preschool Program—Objectives

At the end of the preschool year the children were to demonstrate stated levels of mastery in:

1 language skills (labelling, explaining, describing, and using the social functions of language);
2 quantitative and relationship skills and comprehension (sorting, measuring, understanding basic time concepts and denoting spatial relationships);
3 categorizing skills (by touch, sound, sight, shape and colour);
4 perceptual and perceptual-motor skills, using construction and copying skills;
5 gross and small motor skill;
6 problem-solving skills (initiating, planning and evaluating activities);
7 health and safety maintenance;
8 pro-social behaviours.

The teachers were to endeavour continuously to improve children's

1 differentiated self-concept;
2 concept of self as an initiating and controlling agent;
3 realistic appraisal of self;
4 positive attitudes towards learning and school experiences; and
5 attention skills.

Competency Preschool Program—Curriculum Content

The curriculum content was selected from the traditional preschool curriculum areas—namely language, mathematical, musical, scientific, health and safety activities—which would then introduce the particular concepts or skills concentrated on over the week. To give coherence to curriculum planning, the focal competencies for the period were interrelated through a thematic approach and, while the curriculum planning was done on a weekly and daily basis, sufficient flexibility was incorporated into the planning to enable teachers to respond to impromptu happenings and to incorporate these in their planning. For example, children explored the world of colours through a theme centred on a circus and its activities, and this theme was organized while a circus was visiting the neighbourhood.

The program stressed the presentation of experiences which were part of the children's immediate environment. Children were encouraged to explore and to interact with objects and events found in their environment and to relate these experiences to their peers and to adults in the preschool. Through this approach it was intended to link school learning experiences to everyday events in children's lives.

Environments beyond their school and local surroundings were sampled through arranged excursions.

Apart from the structured learning experiences planned by the teachers, the children had free time in which to select whatever activity they wished from the range available within the preschool. While the teachers varied the activities available, they generally covered large and small motor games, puzzles, games and modelling materials, creative construction, socio-dramatic activities involving 'dressing-up', block-building, musical, water/wood and book corner activities. Within the free time, teachers and aides either structured activities for the children to choose from or freely interacted with children.

Competency Preschool Program—Teachers' Roles

Teachers involved in the Competency Program planned the learning experiences designed to achieve the targeted competencies, structured the group and free time activities, and evaluated the children's progress over the year. While no specific teaching styles were stipulated for teachers within the program, they were expected to maintain a high level of verbal interaction with the children and to encourage children to work co-operatively on their chosen tasks.

Teachers were responsible for establishing a stimulating physical environment within the preschool and encouraging the children's creative work. Within the preschool, materials were arranged in such a way as to provide for free movement and to maintain a consistent placement of materials so that children became familiar with their location. The materials available for children encouraged their active involvement with them, and those materials which stressed the selected competencies were placed in a prominent position where children could find them easily.

The daily routine within the program was a consistent one featuring small and large group and free-choice activities. During the small group sessions, the teachers placed the children into groups determined by the children's pretest performances in the targeted competencies. This process is illustrated in Figure 4.3. Over the week the children had four periods in small groups, with a remedial group activity on the fifth day if needed. These small group sessions were teacher-directed and the children's levels of competence in the selected areas were recorded during this time. The large group sessions led by the teachers covered music, rhythm and language activities. Within the free-choice periods the children decided which activities they wished to pursue. The teachers' roles were to interact with the children at all times in ways which extended the children's verbal and cognitive abilities.

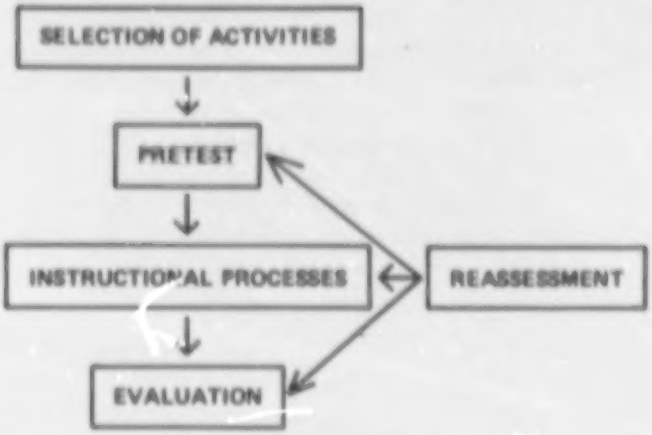


Figure 4.3 **Teacher Processes to determine Children's Performances on Targeted Competencies**

Competency Program—Kindergarten and Year 1 Objectives

The Competency Program's objectives in Kindergarten and Year 1 continued the emphasis introduced by the preschool program. The key curricular areas of language and communication skills, cognitive skills, social and physical skills and creative expression were expanded. School administrators, teachers and parents prepared with Project personnel all the curricular documents for use in the Kindergarten and Year 1 classes. The objectives of the program stressed children's successful mastery of the following competencies by the end of the appropriate year.

Language and communication skills The children were to be able to use language in social interactions, to explain, describe, label, predict, recall and express feelings; to express feelings non-verbally, use non-verbal cues; and to articulate clearly and correctly.

Categorizing skills The children were to be able to form concepts and understand the meaning of same, different, like and unlike, to sort; to conserve; to measure and denote spatial relationships.

Health and safety maintenance The children were to be able to know and observe appropriate health and safety behaviours.

Perceptual and perceptual-motor skills The children were to be able to discriminate by sight, size, shape, colour, sound, touch, taste and smell; and to construct, draw and copy.

The program aimed for the mastery of these skills through directed instruction, but other competencies were also continuously stressed without being directly taught. It was considered important that the children be able to plan, initiate and persist in actions, to ask questions, analyse results and draw conclusions, and to demonstrate self-reliance and realistically appraise their own levels of ability and skills. The program also endeavoured to develop positive attitudes to school, and appropriate pro-social behaviours such as obtaining and maintaining attention, and respecting the individuality of others.

Competency Program—Kindergarten and Year 1 Curriculum Content

In the Kindergarten and Year 1 programs the curriculum content was divided into two categories, major and minor instructional competencies. The former received greater attention from teachers in planning their learning experiences.

Major instructional competencies The program was developed through a series of integrated themes relevant to the child's environment which were organized into areas of study according to their focus and contributing questions. These themes aimed at utilizing and extending the child's experiences, as well as facilitating the mastery of targeted competencies.

At the Kindergarten level, the themes were 'All about Me'—which dealt with the ideas 'myself', 'my body', and 'my family' (Term 1); 'Animals'—the characteristics, habitats and uses of animals, and how they grow and change, move and breathe, and protect themselves (Term 2); and 'Nursery Rhymes and Fairy Stories'—which explored the ideas of magic, enchanted creatures, dreams and spells, the real and the imagined, and 'Christmas' (Term 3).

For Year 1 children, the themes were 'Food' and 'Health and Safety' in Term 1, 'Australian Animals' and 'Our Community' in Term 2, and 'Clothes' and 'Christmas and Fantasy' in Term 3.

For some curriculum areas—namely reading, number and spelling—material supporting the theme-related content was included in the program. Thus, while children read and wrote stories about Australian animals, they visited the zoo, shopped at the supermarket for food, and so on. They also engaged in the 'pragmatic language lessons' which were a key component of the *Mt Gravatt Reading Scheme* (a commercially published Australian reading series) used by the class.

Because the *Mt Gravatt Reading Scheme* uses constructions and vocabulary based on the everyday speech of Australian children, the teachers considered it to be the most appropriate early reading scheme for the children in the program to use. The materials which supplemented the reading scheme, however, did not provide for individual creative reading and writing activities to the same extent as some other schemes, such as *Breakthrough to Literacy* (Mackay, Thompson and Staub, 1970). For this reason, materials similar to those used in *Breakthrough to Literacy*, but incorporating the Mt Gravatt scheme's constructions and vocabulary, were developed. The main advantages of these materials were that children using them could engage in creative reading and writing at their own pace with little teacher supervision, that there was a wide range of sentences which could be created from a subject/verb stem and one or two other words (e.g. *'That's my* dog/book/teacher') and that the children had no difficulty in constructing sentences which were grammatically correct. Reading materials used in the other programs were more eclectic in nature.

Associated with these experiences, the children used *Breakthrough to Literacy* materials modified by the substitution of Mt Gravatt vocabulary for *Breakthrough* vocabulary and constructed their own stories related to both the Mt Gravatt readers and their own theme-related activities. Word attack skills were emphasized during 'pragmatic language lessons'. These lessons involved putting the child into a realistic language interaction situation and developing sight, word, phrase and short sentence vocabularies associated with these situations. Phonic attack skills were based on the *Hay-Wingo* approach in spelling lessons in accordance with school policies. For added variety, children used graded supplementary readers at levels appropriate to their abilities, and borrowed books from the class and school libraries.

While most number work was theme-related, more formal work in counting, number recognition, addition using counters, rods and numberlines commenced at the beginning of Year 1. This was then extended to simple subtraction, multiplication, fractions and number sentences using brackets. These processes also incorporated money signs after children had used money in real and play shopping activities. Space, shape, measurement and time were generally introduced and an understanding of them was consolidated through informal activities.

Health, safety maintenance and personal hygiene were emphasized. Close teacher supervision in the classroom, playground, and on excursions provided many opportunities for the children to rehearse relevant safety behaviours.

The class also participated in a Gross Motor Program introduced into the infants school during 1978. Teachers were specially trained at inservice sessions to implement a carefully designed program of activities using special equipment. Because the program entailed assessment of each child beginning the program, and provision of a series of graded tasks in a variety of gross motor areas at the child's level of ability, it was totally compatible with the objectives of the Competency Program. The necessary individualization was accomplished with the assistance of parents who acted as teacher-aides.

Minor instructional competencies The development of competencies not readily taught by direct teacher instruction was provided for through the structuring of situations where the child could plan and initiate his or her own actions. The free play situation was especially suitable for this end. The work of Smilansky (1968) and Franklin and Biber (1977) demonstrated that spontaneous play is important for both the cognitive and personality development of the child. It has been further suggested by Rubin et al. (1976) and Rubin (1977) that co-operative behaviour and rule-making have their foundations in the experiences gained by the child during association and co-operative play. Moreover, play activities have also been found to be particularly useful for the development of fine and gross motor skills, manipulative skills (Matterson, 1975), sensory modalities (Manning and Sharp, 1977) and imaginations and creativity (Caplan and Caplan, 1974; Millar, 1968). The play situation, together with incidental experiences in reading and number games, was an ideal vehicle for encouraging the development of pro-social behaviours. Turn-taking and recognizing the rights of a child using a piece of equipment, or the needs of another child who has been waiting to have a turn at an activity for some time, were emphasized by teacher attention, intervention and reinforcement. Teacher interest and approval were also used to encourage children to persist with activities and puzzles until they had been completed. Planning and initiating behaviours, persistence at tasks, and pro-social behaviours were also developed through attention and approval by parents and Year 6 children who assisted with craft activities, informal reading and number activities, and during organized play situations.

Competency Program—Teachers' Roles in the Kindergarten and Year 1 Classes

While there was no specified teaching style for the Competency Program, the role of the teacher in this program was indeed most demanding. The mastery learning approach introduced in the curriculum planning and the individualized nature of the program required carefully thought out objectives, hierarchically sequenced learning tasks and the instruction and supervision of large groups, small groups and individuals. Tasks had to be structured to stimulate and maintain interest, and graded to maximize the likelihood of success. Therefore, keeping detailed records on the progress of each child to ensure that class members proceeded at their own pace on work designed for their own particular abilities, and providing them with assistance and encouragement were essential duties for the teacher.

Further, although the program was essentially teacher-centred, with the major emphasis being on instruction and the attainment and application of knowledge, the creation of a warm and supportive classroom atmosphere to foster the growth of self-confidence and a positive self-concept was also one of the teacher's crucial responsibilities.

In addition, because a significant purpose of the program was to encourage the child to engage productively in self-motivated activity independent of close supervision, teachers provided attractive, graded, self-correcting materials on shelves adjacent to each ability group's table and at the learning centres around the room.

The Contemporary Program

The Contemporary Program represented an attempt to develop an educational program representative of 'traditional' Australian early childhood practices. Surprisingly, this was not an easy task. Arguments continued among educators as to which characteristics were 'traditional'. Even the use of the term 'traditional' aroused antagonism among many, who claimed that it had a pejorative connotation. To avoid such recriminations it was decided to label the program 'Contemporary'. A further difficulty was that there was no definitive statement in the literature about the theoretical bases, objectives or procedures of 'traditional' programs. An initial task was, therefore, to discover whether there was any consensus among teachers about such issues.

As a first step in defining the objectives, classroom structure and intended outcomes of traditional practices, a group of preschool teacher educators from around Australia was asked to define the objectives of Australian preschool education. Second, members of the staff of two colleges of advanced education which were training preschool teachers in Sydney were asked to describe and detail the educational practices that preschool teachers should follow. Third, the two major controlling bodies of preschool education in Sydney were asked to nominate ten preschools which they believed were instituting worthwhile educational programs. From these two lists a random sample of ten preschools was visited, with the aim of recording the predominant teaching behaviours of the teachers, the relative distributions of time to various activities, and the equipment used in the centres, and to examine the planning and record-keeping procedures used by the teachers. A composite statement was then prepared describing contemporary Australian preschool practices. This statement was reviewed by preschool educators and teachers and formed the bases for the description of the Contemporary Program.

The structure of the Contemporary Program at all levels was child-centred and activity-based, and reflected the ideas contained in the most recent curriculum documents issued by the NSW Department of Education. Further planning by the infant mistresses, teachers and the program assistant modified these documents.

Contemporary Preschool Program—Objectives

The goals reflected the program emphases and were more concerned with the children's social and emotional development than with their cognitive development. They attempted to express an existing Australian preschool tradition, and were further clarified and elaborated by modern restatements of preschool goals such as those undertaken by Shapiro and Biber (1972).

The objectives of the Contemporary Program for preschool were presented in the following form.

1 *To help develop children's self-esteem and self-understanding* By adults accepting children as individuals and providing them with a permissive environment, children come to accept their own feelings, motives and fears. It was anticipated that children would feel able to determine their own activities and to attempt to resolve any problems arising from the decisions they took.
2 *To encourage in children an openness to experiences* It was envisaged that, if children were provided with a wide range of experiences and environmental stimuli, as well as freedom of choice, then all activities, particularly creative ones, would prove enjoyable and beneficial to their development.
3 *To encourage a variety of social interactions* By creating a warm and secure environment, it was hoped to develop the children's sense of trust, their environment of interpersonal communication and their ability to join in collaborative projects with others.
4 *To extend children's ability to benefit from learning experiences* By encouraging the children to be curious, it was hoped to develop their ability to explore the environment systematically for answers to problems, and to enjoy increasing learning and social competence.
5 *To promote physical and cognitive growth* By providing a wide range of physical activities and graded puzzles/learning materials for children to use, it was hoped to develop gross and fine motor skills and problem-solving abilities.

Through a variety of learning experiences children were to increase their knowledge in social and natural sciences, and develop their ability in physical co-ordination, perceptual discrimination and their use of language as a tool of communication. Moreover, while they were expressed separately, the goals given were seen as being essentially interrelated.

Contemporary Preschool Program—Curriculum Content

Unlike the Cognitive and Competency Programs, which had specific curriculum content areas to be introduced to children, the curriculum content of the Contemporary Program was based upon the children's interests. Nevertheless, teachers had developmental areas to guide their interactions with the children. These concerned the children's personal, social, physical/motor, perceptual, language and cognitive development. The developmental areas and the means of implementing them are listed in order of diminishing importance in the practices of the Contemporary Program.

Developmental area	*General strategy of implementation*
Personal and social	Freedom of movement, and self-reliance in a democratic, accepting atmosphere.
Physical/Motor and perceptual	Provision of specific materials to develop these skills.
Language and Cognitive	Interaction with adult models.

Each developmental area encompassed the following specific objectives which guided curriculum development.

Developmental area	*Specific Objectives*
Personal	The development of initiative, self-reliance and self-confidence
Social	The development of ease of communication with both children and adults, and the ability to work co-operatively in small and large groups
Physical/motor	The development of free confident movement, and the development of fine motor skills, e.g. stacking, cutting and pasting
Perceptual	The development of the ability to sort like objects and to discriminate on the basis of shape, colour and other attributes
Language	The development of the ability to speak clearly and confidently, and the development of a wider vocabulary
Cognitive	The development of an understanding of basic logical concepts of causality and time

Teachers assessed the children's abilities in these areas through daily observations in the preschool. Since there was no 'set' curriculum it was likely that each child would develop skills in a unique way. Teachers aimed at supporting this development rather than imposing their own processes of instruction on individual children.

Perhaps this Contemporary Program differed from other 'traditional' programs in that language enrichment received greater attention than was usually the practice, as the children were introduced to more structured situations outside their free activity sessions wherein language and musical activities were introduced. Common objects and activities found in their environment were introduced and often formed the basis for other extension activities when the children expressed any interest in them.

Contemporary Preschool Program—Teachers' Roles

Teachers in the Contemporary Program had a less didactic role than in the Cognitive and Competency Programs, and their role centred on the quality of their interactions with children. The teachers were seen as facilitators of learning, who provided the conditions for socializing experiences and for cognitive development. They were also viewed as a resource, a support that the children could rely on in times of emotional needs and a guide to help children make sense of their environment and use it to their own ends. The teachers were also interactors whenever this role was sought or accepted by the children. In this last role, teachers needed initiative and sensitivity, for interactions with children within the program could not be standardized. They depended instead on the needs of the individual child in a particular circumstance.

Aides within the Contemporary Program acted as teachers during the long free-play period and took responsibility for initiating and carrying through activities. Mostly their training took the form of on-the-spot observation and imitation of teachers and was not derived from a set of guiding principles. Occasionally they replaced a teacher in planned small group or large group activity, but they did not wish to be involved in the more formal activities. However, impressive work, particularly in the expressive activities, was achieved by these aides.

Contemporary Program—Kindergarten and Year 1 Objectives

In the Kindergarten and Year 1 classes the Contemporary Program was still child-centred and activity-based, but skills were introduced into the curriculum. Its objectives were:

1 to provide an individualized set of experiences for each child that fostered his or her emotional well-being and the development of personal, social and cognitive skills;

2 to set up a context for learning experiences based on the children's own experiences but also expanded to include new experiences;
3 to cater for the development of the children's creative potential through interaction with materials, their peers and adults; and
4 to provide opportunities for each child to select and follow through activities independently.

The extension of the Contemporary Program into Kindergarten and Year 1 classes was the first time that this educational approach had been comprehensively maintained in Australian schools.

Contemporary Program—Kindergarten and Year 1 Curriculum Content

As the objectives of this program lay predominantly in the affective domain, the primary focus in the preparation of learning experiences was the classroom procedures and practices rather than any specification of curriculum content. Play provided the framework within which the learning experiences were organized. For example, role-play gave opportunities for the children to act out powerful or dominant roles and to counteract feelings of helplessness or control by others. Such activities were considered important processes in the children's development of autonomy and self-confidence, both of which were important objectives of the program. The play experiences were also used to achieve other objectives, such as vocabulary enrichment, through discussing various aspects of the specific role-play. In this way information could be informally transmitted, and the teachers needed to be alert to the possibilities, for achieving this, that arose during everyday activities.

Within the skill areas, specific content based on pre-reading and writing and mathematics curricula were introduced. The activities included in these areas followed the recommendations of the NSW Department of Education syllabuses, and were modified by the school to meet local needs.

Contemporary Program—Teachers' Roles in the Kindergarten and Year 1 Classes

The roles outlined for preschool teachers within the Contemporary Program were maintained in the program for Kindergarten and Year 1. These involved the teachers acting as initiators, responders, facilitators and evaluators. However, at the higher year levels, the roles of initiator and evaluator assumed greater significance.

Classroom procedures were devised to maximize interactions between the teachers and individual children. However, with a maximum child/adult ratio of one teacher to thirty-two children it was obviously more difficult to individualize instruction than it had been in the preschool setting with its more favourable child/adult ratio.

Early in the Kindergarten year, instruction in skills was carried out in small groups, with activities provided at different levels for different groups. Initially, all groups were formed on a social basis, with the children selecting their own groups. Later, groups were formed for reading on the basis of ability and social groups remained for mathematics. The ability of the children to learn independently was discussed and more autonomy in working alone was given to those able to make use of it.

In Year 1, these groups were dispensed with altogether and individual children went about completing both set and free activities in a completely independent way. The result of the progress begun in Kindergarten was that very few events were carried out routinely and that classroom events and procedures were closely tied to programming which was individually based.

The Behaviourist Program

This program was derived from the Behaviour Analysis Preschool Curriculum developed by Bushell at the University of Kansas (Bushell, 1973). Essentially the program involved the systematic application of sequencing and reinforcement techniques derived from behaviourist learning theories and empirical studies. Specific learning objectives were formulated and the children's progression towards the mastery of these objectives was carefully monitored. The objectives that the children had to attain were based on curriculum content selected from the basic skills areas of pre-reading, pre-writing and pre-number.

Formative evaluation of performances in the specified areas by teachers and aides was an integral part of the daily operation of the program. To facilitate the program's operation, curricular experiences were hierarchically structured by their degree of difficulty. The teacher's task therefore was to provide learning experiences that would enable children to master a given task before proceeding onto the next level of difficulty. If a child failed to master the task at a specified level, remedial tasks could be introduced to enable the child to master the skill being taught. This procedure is illustrated in Figure 4.4.

Whereas the Bushell model used a 'token economy' to maintain the children's attention to the set tasks and to reward their progress, our program did not. Social praise was substituted as a reinforcer in place of the token economy used by Bushell, as the school administrators and teachers in the school implementing the model objected to the introduction of the token economy into the preschool classroom. Investigations before the introduction of the program suggested that preschool-aged children responded positively to appropriate social reinforcers.

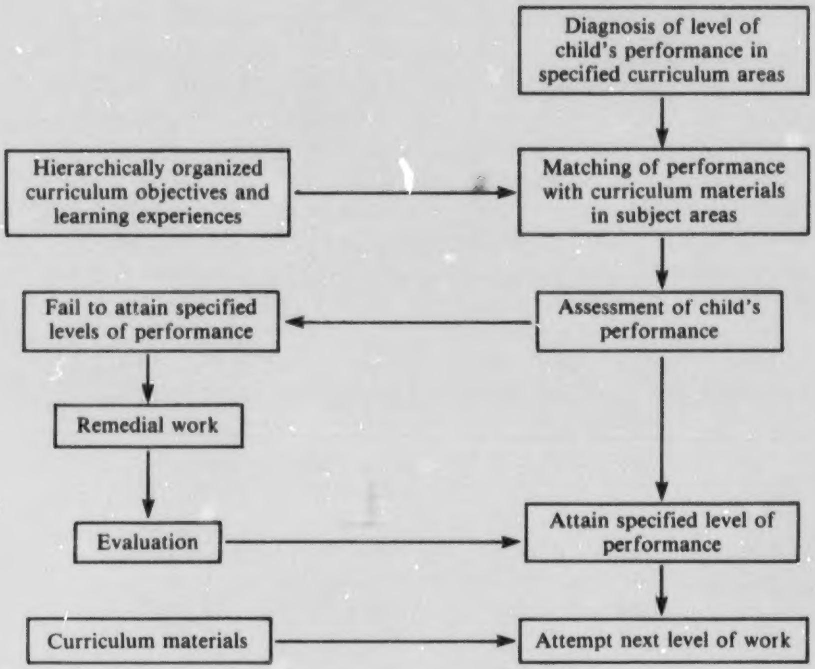

Diagnosis of level of child's performance in specified curriculum areas
Hierarchically organized curriculum objectives and learning experiences
Matching of performance with curriculum materials in subject areas
Fail to attain specified levels of performance
Assessment of child's performance
Remedial work
Evaluation
Attain specified level of performance
Curriculum materials
Attempt next level of work

Figure 4.4 Mastery Procedures used in Behaviourist Program

Behaviourist Preschool Program—Objectives

The objectives of the Behaviourist Program for preschool were the development of:

1 pre-reading skills of visual, auditory and kinaesthetic discrimination, left to right progression, vocabulary, comprehension and literary appreciation;
2 pre-writing skills of muscular co-ordination, manipulative skills and specific writing and pattern activities in a developmental sequence;
3 pre-number skills in the areas of classification, seriation, spatial relationships and numeration;
4 pro-social skills that related to interaction with peers and adults and those that related to the use of materials;
5 creativity by participation in art, craft and music; and
6 the children's knowledge about health, safety and physical fitness.

The last two objectives represent not only the aims of this program but reflected the policy of the school in which the program was to operate.

Behaviourist Preschool Program—Curriculum Content

Four components were essential for the implementation of the curricular experiences within the program. They were the detailed specification of curriculum objectives and content, the children's initial screening test, the individual record cards and the class record cards.

The curriculum objectives and content in the key learning areas, pre-reading, pre-writing and pre-number, were determined in great detail and arranged in a hierarchy from easiest to most difficult tasks. These documents were kept under constant review and were modified when necessary. While the curriculum documents appeared to be quite prescriptive, teachers often varied previous plans in order to take account of unexpected events occurring within the preschool, or planned their day's instructional activities to incorporate special events into their ongoing plans.

Initially, a screening test had been designed to determine children's levels of performance in the designated areas. With experience, the teachers found that the most efficient method, in terms of administration, was to work through the skills itemized on an individual record card which listed the objectives to be reached over the year in pre-reading, pre-writing, pre-number, and in pro-social behaviours. When planning activities the teachers divided the objectives into group segments, a term in length, and then into weekly segments usually selected on suitability to a selected theme. In practice, this record card became a source of continuous and corrective feedback on entry level placement and progress for the individual children. Also, any curricular segments that were redundant or that needed supplementing soon became apparent.

However, continued implementation of the program saw the teachers and aides recommending a return to the original screening test. They considered that the screening tests expressed in greater detail and contained better descriptors of the behavioural measures needed in the preschool than did the statements listed on the record card.

Behaviourist Preschool Program—Teachers' Roles

In the introductory discussion of the program the sequence of procedures that teachers followed to organize the learning experiences was outlined (see Figure 4.4). Another central feature of teachers' roles was the use of social praise within the classroom. O'Leary and O'Leary support its use:

> Teacher attention in the form of a pat on the back, a hug, a smile, or a word of encouragement can be one of a teacher's most useful tools. By systematically using such teacher attention, the frequencies of a great variety of problem behaviors in pre-school and elementary school children

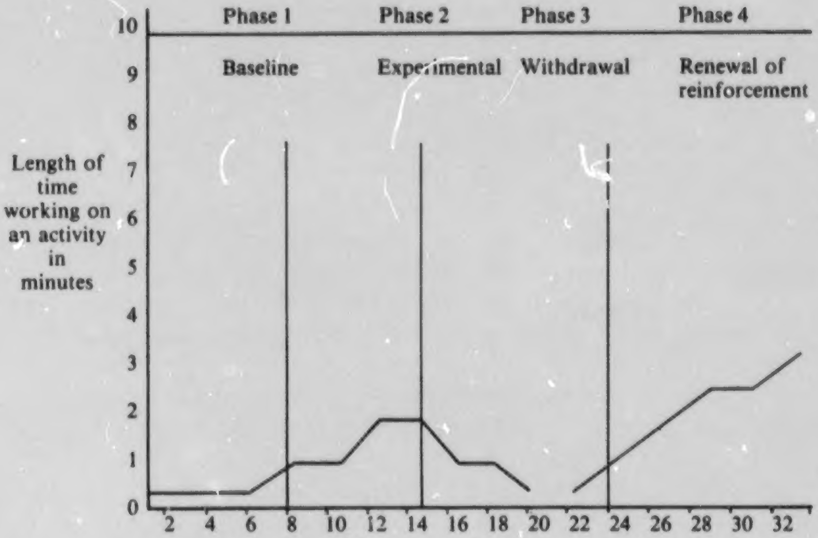
> have been successfully reduced. Fortunately most teachers find the systematic use of praise natural and uncomplicated, and since teacher attention can be used to decrease a wide range of problem behaviors and to increase many appropriate behaviors, teachers should first attempt to handle most problems with teacher attention. Only when praise is ineffective should more complicated and powerful procedures, such as token reinforcement programs be employed. (O'Leary and O'Leary, 1972:87)

A specific skill that the teachers and aides had to develop was expertise in the use of descriptive praise. From general praise statements such as 'nice' and 'good' the use of descriptive praise expressions such as 'That's a lovely painting, Jim' or 'I like the way you are packing away, Barbara' needed to be developed. Such statements illustrate two desirable features of descriptive praise. First, the child's name was used, and as well as personalizing the contact between teacher and child, this practice took advantage of the fact that the sound of one's own name is a positive event for most of us. Second, the praise specifically identified the behaviour the teacher found commendable.

Teachers and aides within the program had to master the use of social reinforcement techniques and skills in order to implement the program successfully. The inservice training of teachers, the monitoring of their performance and feedback of the results of the monitoring were continual tasks. Teachers' behaviours within the program were rated on an *Instructional Teaching Criteria Observational Form* which enabled their strengths and weaknesses to be discussed.

As was the case in other programs, regular inservice sessions were valuable for overall planning, and discussing the problems, frustrations and successes that occurred. The value of this ongoing formative evaluation and feedback cannot be stressed too highly.

When behavioural problems occurred, the teachers followed two strategies. The first was to ignore unwanted classroom behaviours and the second was to praise desirable behaviours immediately within the vicinity of the erring child. Generally this practice overcame behavioural problems. However, when this procedure failed to modify a child's behaviour, a second procedure called 'time out' was initiated. For an example of 'time out' in operation, consider the case of two children fighting. The teacher intervenes and explains that by fighting they may hurt each other and everyone will be unhappy. Without further comment, the two are seated in chairs which are some distance from the rest of the children. After three minutes, the teacher indicates to them that they may return and the incident is over. The entire sequence is carried out in a non-emotional, matter-of-fact way. A rule is broken and there is an immediate consequence of the withdrawal of reinforcement. The teacher does not scold, admonish or lecture. The 'time out'



Baseline:	After eight sessions of observation the baseline data was graphed. At no time was the child observed to be working on any activity for longer than a minute.
Experimental:	The teacher intervened and began working with the child on selected activities. The child's concentration span began to increase.
Withdrawal:	On withdrawing reinforcement, the child's behaviour returned to the baseline level.
Renewal of reinforcement:	However, as soon as teacher's attention was reintroduced, the child quickly recovered and improved to working on an activity for four minutes.

Figure 4.5 The 'Directionless' Child

procedure is precise and exactly timed to follow the rule violation.

Some children were of particular concern and a different strategy was required to modify their behaviour. In such situations the first task was to define the inappropriate performance or actions in behavioural terms. If this was not done, two difficulties arose. First, it was possible to label a child with terms like 'aggressive', 'shy and withdrawn' or 'directionless' without being certain as to what they meant. Second, and perhaps a more serious problem, was the possibility of having an impression of a child as aggressive and then focusing only on behaviours that complied with that impression, while ignoring all the evidence to the contrary. The classification of children's behaviour in terms of their specific actions enabled consensus to be reached on the occurrence of any particular behaviour and allowed the frequency of its occurrence to be graphed.

The following is an illustration of what happened with a 'directionless' child. The first problem was one of definition. The behaviour to be reinforced was one of application and concentration. It was decided that the recorder would time the number of minutes the child worked on one activity, from the moment the child began working until completion of the activity. It was made mandatory that the child work on one activity for one full minute to score a frequency of one. Every minute for which the child continued working was also scored as one. This scoring procedure enabled the child's behaviour to be graphed, as shown in Figure 4.5. The child was observed in ten-minute blocks per session. From Figure 4.5 it may be noted that the procedure had some success in helping the child to apply himself to the set tasks.

Behaviourist Program—Kindergarten and Year 1 Objectives

The only modifications to the objectives of the Behaviourist preschool program related to the integration of appropriate curriculum experiences from the infants curriculum of NSW Department of Education. The objectives for Kindergarten and Year 1 were the development of:

1 *reading* skills of visual discrimination and memory, auditory discrimination and memory, tactile discrimination, spatial relations, logical thinking, gross motor, fine motor, and hand-eye co-ordination as well as other stipulated skills;
2 *number* concepts of mass, size, length, position, conservation, capacity, time, money, shapes, and skill in the use of attribute blocks; and
3 *writing* skills of posture, crayon/pencil grip, tracing, drawing, copying one's name and writing the numerals 1-10 correctly.

For Year 1 children these three objectives were supplemented by the following objectives which sought to develop:

4 *reading* skills of structural analysis, word attack, phonic analysis, comprehension, dictionary use and library use;
5 *number* skills of numeration, number operation, application, practical number and sets; and
6 *writing* skills of forming all lower case letters and recognizing upper case letters.

The following objectives were introduced into *all* classes in the school:

7 the development of *pro-social* skills relating to interactions with peers, adults and materials;

8 the stimulation of *creativity* by participation in art, craft and music;

9 an expansion of the child's *language knowledge* (literature) and skills (spelling); and

10 an expansion of the children's *knowledge* about their social and physical world, with specific emphasis on health, safety and physical fitness.

Behaviourist Program—Kindergarten and Year 1 Curriculum Content

Reflecting the objectives of the program, the curriculum content in these two year levels was extensively detailed for the skill areas of the curriculum. As the documents were quite extensive, an example taken from a letter to parents of Kindergarten children gives the flavour of the curriculum planning.

> *Reading* All children can recognize on sight the following words: big, little, mum, dad, boy, girl, is, cat, dog, the, my, I, baby, home, am, jump, can, yes, no, at, school, we, play. Once the children mastered these sight words they started on their *Sentence Makers* which is an introductory reading scheme.
>
> *Writing* The children have moved from tracing over their name to copying their name from a model. It is recommended that when at home the children be encouraged to do the same rather than attempting to write their name without a copy. At this stage, free writing without a model tends to lead to incorrect letter formation which causes problems with formal writing in Year 1.
>
> *Number* A variety of skills has been set for the children to master in Number.
>
> The children have used a wide range of materials in free and guided play in order to develop such skills as the following:
>
> *Concepts* The children can use such terms as: heavy/light, sink/float (WEIGHT); big/little, tall/small, thick/thin (SIZE); long/short (LENGTH); over/under, in/on, high/low (POSITION); full/empty (CAPACITY).
>
> *Time* The children can use such terms as morning, afternoon, day, night. Also they can relate meal names to specific times of day (e.g. breakfast/morning).
>
> *Money* The children can recognize one cent coins. To develop the children's ability in exchanging money, provision has been made for shopping experiences.
>
> *Shape* The children can identify a square, an oblong, a triangle and a circle.
>
> *Colour* The children can identify red, yellow, blue, green, white, black.

> *Number* The children have developed the concept of number up to seven. The listening post as well as the use of set work and number line activities have been found useful aids in assisting the children in this development.
>
> (Letter to parents, 1978)

Behaviourist Program—Teachers' Roles in Kindergarten and Year 1 Classes

Teachers in these two year levels had the same roles as those specified above for the preschool teachers. The essential difference reflected the larger maximum child/adult ratios of one teacher to thirty-two children. To overcome this difficulty when planning for individual work the teachers used parents as group or individual tutors.

During the day both Kindergarten and Year 1 classes tended to follow the same routine. Between 9.00 and 11.00 a.m. the teachers introduced the learning experiences drawn from the terminal objectives. Such lessons may have introduced, reviewed or drilled the appropriate topic. The group size varied from whole class, through small groups to individual instruction.

Between 11.15 a.m. and 12.30 p.m. different activity areas were set up. Some of these were compulsory for all children while others involved free choice. The latter activities included the listening-post, the shop, weighing, water-play, using the sentence-maker reading scheme or painting. The activities were suggested by the goals for the week. Teacher and parents monitored the compulsory activities, recording children's performances on the specific tasks. Between 1.30 p.m. to 2.30 p.m. for Kindergarten and 3.00 p.m. for Year 1, activities drawn from the other subject areas such as art, craft, physical education and social science were introduced.

The Home-based Program

Whereas the other four programs were implemented in preschool centres within the primary schools, the Home-based Program primarily operated within the children's homes. The comparative novelty of the program for Australia created teething problems, referred to in chapter 2. However, by the end of 1976 and prior to the beginning of the evaluation, the program had settled down and was being implemented effectively.

The program was originally modelled on the US Department of Health, Education and Welfare's Home Start Program, and modifications were made to suit local needs and resources, and teachers rather than non-professionals were used. The program enrolled only preschool-aged children (minimum age three years and nine months). Departmental regulations prevented the enrolment of younger children.

Once children reached a minimum of four years nine months they were enrolled in Kindergarten and proceeded with their peers in the normal educational setting. Initiatives taken to reinforce schoolhome integration activities with the children when they were in Kindergarten and Year 1 classes are detailed in later sections. No data are presented in this study about the programmatic effects of the Home-based Program on these children, as no systematic and continuous program initiatives were undertaken in Kindergarten and Year 1.

Home-based Preschool Program—Objectives

The Home-based Program's objectives were specified for both children and parents. While it was the children who were enrolled in the program, it was their parents who were the central agents and targets of the program. By working in this way the program hypothesized that the ongoing parental behaviours were going to affect children's development to a far greater extent than were the efforts of the teachers during the limited time of their weekly visits.

Because it was distinctly different from the centre-based programs in the way its services were delivered, it was considered useful to specify general objectives for this program. The Home-based Program sought to:

1 increase the parents' confidence and consciousness in their role as the principal educators of their children;
2 identify, co-ordinate and integrate the existing community resource, and services for the provision of nutritional, health, social and psychological services for families as they were needed;
3 assist parents to increase their knowledge and understanding of children's growth and development;
4 assess with parents the needs and strengths of the family and the physical environment of the home; and
5 provide, where appropriate, diagnostic services to ensure that no child progressed through the preschool years with an undetected educational or physical handicap.

For children the program endeavoured to:

1 allow children to interact with and learn from their encounters with materials;
2 develop skills in making decisions, planning and directing activities, seeking adult help when appropriate;
3 develop language skills, specifically as a means of giving events structure and interpreting experience;
4 develop an increased awareness of events in the home and the community, its people and its services; and
5 develop curiosity, tenacity, confidence and self-esteem, physical development and knowledge about the body's needs.

For parents the program sought to:

1 to develop an increased awareness of existing strengths and increased confidence in the development of new parenting skills;
2 to experience success and enjoyment in interacting with their children;
3 to develop the ability to provide choices, give reasons, share ideas and provide an adequate speech model; and
4 to develop a sense of familiarity with and participation in the school setting.

Home-based Preschool Program—Curriculum Content

Due to the nature of the objectives of this program there was no clearly prescribed curriculum content at the outset. Home-based teachers included parts of a traditional preschool curriculum within their activities and selected activities from publications of other home teaching projects, or else derived procedures from the pattern of daily life observed during the visits. The activities were selected if they put structure into events and showed children that there are different ways of interpreting experience, thus teaching them to perceive and express the logical relationships within their experiences (classification, seriation, number concepts, temporal and spatial relationships).

Activities also had to develop children's personal autonomy with a general reduction of adult intervention, teach them about their own community, and to question and give reasons for actions and use language appropriately.

Wherever possible the children and their families had access to equipment similar to that provided in the centre-based programs. However, the teachers readily and intentionally used the toys and equipment that the parents had in their homes. A wide variety of activities were used as the medium of interaction between parent, teacher and child and, above all, the activities were tailored to suit the needs of individual families.

Home-based Program—Teachers' Roles

The implementation of the Home-based objectives required the teacher to work outside the usual educational context. Most of her contact time was spent in a one-to-one situation in a child's home. A Home-based teacher had a great deal of autonomy and was responsible for her own development within the role.

The teacher had to be skilful in communicating, non-judgmental and accepting of other points of view. She had also to be flexible enough to receive advice willingly from parents. In the exercise of her profession she needed, of course, to be knowledgeable about child development and able to sense the correct timing for particular kinds of input, but beyond these, the home-based work required her to be motivated to assist both parent and child, to provide models for target behaviour and generally to be supportive beyond the realization of immediate goals. To perform these roles, a teacher needed above all a positive self-image and confidence in her own judgment.

Planning was an important aspect of the teacher's role. The week's activities were primarily planned for the target child but this often allowed for interactions with younger children in the family. Teachers tried to link up their immediate objectives to the current domestic activities. Every effort was made to involve the parents and to model a variety of options for them, permitting more successful management interactions. Simple techniques of behavioural modification were applied in situations where mother and child were locked-in to a negative style of interaction. The most frequently used techniques for influencing parent behaviour were praise and encouragement.

The teachers were co-learners with the parent and judgments were constantly required about the timing, suitability and relevance of activities. Sometimes great tact was needed in bringing problems to parents' awareness. Many were not solved overnight and solutions were only arrived at over a long period of time.

A weekly record of visits was kept for each family to ensure that suggestions made were followed through and successes and failures discussed equally.

The teachers gave constant support to mothers of children with special problems and suggested the use of community resources which might not already be known or reinforced advice given by therapists. This interdependence of the Home-based Program and other community agencies was necessary both for the economy of diagnostic and therapeutic effort, and for the support of teachers in their role. Referral to another agency for assistance did not just involve a simple act of introduction, but required the teacher to become involved in a complex set of negotiations.

The teacher visited each family once a week for approximately one hour. The 'lesson' took place wherever it was convenient, for example, the kitchen or dining-room table, or lounge-room floor. In many families younger children were also present. For the earlier sessions in the year, the teacher usually brought her own materials and the lesson would then centre on these materials. As teacher and mother gained confidence in each other, materials and activities were more frequently obtained from within the home.

Parents and children were generally interested in the whole range of activities offered and looked forward to the teacher's visit each week. Teachers had to be prepared to alter the course of the visit if necessary: for example, the mother may have been anxious about unpaid bills, tired through lack of sleep, or preoccupied by marital problems.

The development of a sound relationship between parent and teacher was essential for successful implementation of the program. Mothers had to feel free to reject advice they considered irrelevant but be sufficiently motivated to put into practice suggestions that had some meaning for them. It was in this way that the real impact of the program was achieved.

Parents were also welcome to visit the teacher at the school for a chat, cup of coffee or to borrow from the toy library. Parental discussion groups were held regularly at the school. These usually commenced with a structured play session in which parents became involved in play with their own and other children. This was followed by an informal meeting of parents with one of the teachers while the children remained in the playroom in the care of students and a teacher from nearby high school. The discussions were valuable opportunities for sharing views on child-rearing and getting one's own problems in perspective.

Throughout these teaching/learning sessions, teachers were constantly listening and perceiving in order to become increasingly aware of behavioural indices of warmth, hostility, approach and withdrawal and to become better interpreters of linguistic exchanges during their visits. Flexible modes of presenting basic concepts were adopted and prepared lessons were adapted as necessary.

Of necessity the program reflected the educational values to which the parents aspired, and concentrated much of its work on language and cognitive development. At the same time it had to reinforce meaningful relationships between parents and their children. The essentially supportive role to parents played by the teachers cannot be emphasized enough.

While the essential characteristics of the Home-based Program reflect the main emphases of the literature on educational disadvantage, the program's educational practices had to react to the ever-changing demands of individual parents. Three assumptions influenced all interactions between parents and the teachers during weekly visits:

1 goals with respect to children would not be implemented separately from goals with respect to parents;
2 the impact upon the processes of family interchange was the important result; and
3 changes within families required reinforcement from the community if they were to be sustained.

Home-based Program Initiatives in the Kindergarten and Year 1 Classes

Because of its focus of working with parents and children in their homes, the continuation of the Home-based Program was not possible when the children attended Kindergarten and Year 1 classes. The teachers, of course, continued their work with succeeding cohorts of preschool-aged children.

To ensure that the links developed in the preschool year between school and home were not lost, the teachers continued many of the activities started with the Home-based Program. For example, parents were continuously encouraged or cajoled to become involved in school activities. 'Coffee clubs' and informal discussion sessions continued while, at a more formal level, parents volunteered to work as aides within the various classrooms. Often these sessions embraced specific didactic roles as parents took on the responsibility to run remedial language, or mathematics and reading groups for children. In these sessions the parents followed strategies and structures developed by specialist or class teachers. Teachers for their part were encouraged to respond to parental requests for involvement in the educative process and many soon appreciated the values flowing from such involvement. To claim that all the seventy-odd teachers in the school where the program was established welcomed parental involvement would be overstating the situation. Nevertheless a majority of teachers were extremely supportive to the notion of parental involvement.

Comparison of Program Dimensions

To attempt to clarify the main dimensions of the five programs, Table 4.2 summarizes the foci, settings, process and product characteristics of the five programs over the three years. While setting out these characteristics in tabular form does assist comprehension, it can exaggerate the differences among the programs. There are also similarities among the programs which are not necessarily highlighted by Table 4.2.

Other General Intentions

The previous sections outlined the programs introduced into the five schools. While the development, implementation and evaluation of the five programs was the primary concern of the Project, once this aspect was underway increasing attention was directed towards the other goals. Rational planning would have suggested that we should have endeavoured to achieve all of the goals concurrently. However, the necessity to win acceptance by all the power groups within the community made such a step unrealistic. The confidence and support of these groups was slowly acquired as the successful implementation of the preschool programs became apparent. This is not to suggest that parents and school administrators were not initially supportive; they were. Yet quite a deal of negotiation among all parties was necessary over the first year before acceptance of the Project's activities became viewed as a necessary ingredient in the local education provisions. Perhaps of all the programs, the Home-based Program proved to be the greatest challenge in terms of successfully selling the ideas advocated by its teachers.

Once the preschool programs had become more self-sustaining and required less continuous support by the Project team, it was possible to attempt to broaden the scope of the Project's activities. The goals do suggest a commitment to a broader perspective on early childhood education practices than previously followed in Australian studies. In practice this meant involving as many community groups in planning and decision-making as possible and then evaluating the effectiveness of the processes which had been initiated.

Of course, real involvement by parents and the community in schools posed certain threats to the traditions and established order of Australian schools. Teachers for their part were somewhat wary of always having parents around. The parents were usually content to leave the teaching to the teachers. Consequently, the bringing together of the two groups for real community involvement had to be a slow process in order to let both groups assimilate the potential benefits.

Summary

This chapter has attempted to provide specific information about the Project's intentions, settings and educational programs. It has endeavoured to provide some insights into the Project's styles of operation over the years. It is necessarily incomplete in some areas and over-emphasized in others, as it is difficult to strike an adequate balance in relating developments over time, given that many of the issues which loomed large in everybody's minds at specific times pale into insignificance over a longer time span. Nevertheless, it is hoped that the information presented in this chapter has provided an adequate synopsis of the Project's developments, and lays the foundation for the subsequent chapter concerning the Project's evaluation activities.

If there is one aspect that this review downplays, it is the time scale involved in the initiation and development of the Project's activities. In retrospect it is possible to imagine that all beginnings and decisions were implemented smoothly and quickly with little effort. This was far from the case. While some initiatives were still-born and some withered away slowly, the majority were successfully implemented and these were reported in the preceding pages. The possible reasons for the failures will be examined in later chapters.

Table 4.2 Comparison of Program Dimensions

		Cognitive Program	Competency Program	Contemporary Program	Behaviourist Program	Home-based Program
Focus	Main objectives	Concerned primarily with the development of children's cognitive development and planning/organizational abilities of children	Concerned with development of skills and attitudes judged to be essential for success in school	Concerned primarily with children's social/emotional development	Concerned with the mastery of reading, mathematics and writing skills	Concerned with the improvement of all-round parenting skills of mothers and fathers
Setting	Location of program	In preschool centres within normal primary schools, followed by enrolment in the usual Kindergarten and Year 1 classes within the same school				Within the homes of the children
	Child/adult ratio	In preschool, 1 adult for 10 children to a maximum of 40 children per session. In Kindergarten/Year 1 classes, 1 adult for 32 children supplemented by parental help and regular support of teacher's aides				One home-based teacher had responsibility for 12-14 families
	Age of children upon first enrolment	Minimum age of 3 years 9 months upon first enrolment in preschool				
	Length of school day	Two preschool sessions of 2 hours per day, 5 days a week In Kindergarten, children attended from 9.30 a.m. to 3.00 p.m., and from 9.30 a.m. to 3.30 p.m. in Year 1 for 5 days per week. All school years had 42 weeks.				Length of contact varied but was at least one hour per week

Process	Teacher's roles	Teachers structure environment systematically for children. Help with children's planning and interact with them continuously. Teachers verbal behaviours are inquiry-oriented.	Teachers provide structure only for individual and group sessions. Overall classroom structure changes from term to term. No specific teaching behaviour required though teachers were didactic in relationships with children.	Little teacher structure in preschool as teachers respond to children's initiatives. More individual structure in skill areas provided in later grades. Teacher is responder/facilitator.	Teachers arrange skill areas in heirarchy. Pretest children's abilities and teach skills on mastery basis. Continuous monitoring of children's progress. Teachers must use praise in appropriate ways and specified management techniques.	Teachers interact with parents and children in eclectic manner. Learning experiences either pre-planned by teachers, or arise from spontaneous experiences within homes.
	Environmental dimensions	Team-taught at all grade levels. Range of activities organized from which children choose.	Team-taught at preschool level. Individual teacher working with class at later levels		Team-taught at all year levels	Individual teaching
		Child/teacher and child/child activities equally featured.	Activities centre on targeted competencies.	Wide variety of activities selected by children Mostly child/child interactions	Activities concentrate on skill areas Child/teacher interactions predominate	Activities arise from teacher's initiatives and parental needs.
Product	Outcomes	Determined by children's progression from object to sign levels and moving from action to language in the key cognitive experiences	Determined by mastery of skills in specified competencies and ratings on attitudinal scales	Determined by teacher ratings of social/emotional development and individual progression in skill areas in Year 1	Determined by mastery of hierarchically organized curricular experiences in skill areas	Largely determined by parental acceptance of tasks and subsequent interaction of parents and children
Parental involvement		All programs stressed parental involvement with children in school.				Parents encouraged to become involved in schools though program centred in home. Special rooms set aside as 'drop-in' centres

5

The Evaluation Model

> Always be suspicious of data collection that goes according to plan.
>
> (Patton, 1980)

The necessity to evaluate the activities and programs of a project of this complexity posed conceptual and human resource problems. Since evaluation procedures often produce negative attitudes on the part of schools, teachers and parents, it was essential to avoid the development of such attitudes and to show how participants could benefit from a collaborative approach to evaluation which could support their endeavours. This change in attitude did not come about easily but, through involving the teachers and parents in the design of the evaluation model, accepting their views about specific practices and, above all, feeding back the results of the evaluation to them in such a way that they could if necessary modify their practices, a more collaborative evaluation model was developed.

On a more technical level, recourse to the literature for guidance in evaluating the Project was not particularly fruitful. Not that there was any shortage of evaluation models in the early childhood literature, but it soon became apparent that none suited our own needs. Consequently, we developed our own evaluation model (cf. Ball and Braithwaite, 1976). While it may be validly argued that constant development of new evaluation models and instruments makes generalization across studies difficult, it is believed that it is possible to compare the Project's processes and products with other early childhood education studies.

The evaluation model developed four objectives:

1 to specify overall, and separately for different kinds of children, the short-term and long-term, intended and unintended effects on pupils, family and school of the five programs;

2 to contribute to the understanding of basic processes in the growth and development of young children. This understanding has relevance to educational, medical, psychological and sociological disciplines including the processes of educational evaluation itself;

3 to describe the processes that occur within each of the five specified programs when functioning as intended; and
4 to specify what administrative, fiscal and educational steps have to be taken in order to ensure the effective functioning of the five specified programs. (Ball and Braithwaite, 1976)

To achieve these objectives, process and product data were collected from the four groups affected by the Project's activities: children, school personnel, parents and community groups. The data presented in this study represent the process and product data collected to answer the questions posed in the next section. Other specific program data were used to evaluate program objectives but these data are not included in this study, having been reported in Mount Druitt Early Childhood Project Evaluation Reports.

It is worthwhile at this stage to raise two issues that emerged as the Project's activities were evaluated. First, the collected data represented a compromise between ideal evaluation procedures and the realities imposed on the Project by time and circumstance. At times, it would have been useful to initiate different methodologies to collect particular sets of data. Yet either the pressure of ongoing activities or the existing state of the art concerning evaluation of a specific area often ruled out such possibilities.

Second, it could be argued that we should have employed independent, outside evaluators to ensure that the biases of the Project staff did not distort the findings. Again, this was beyond our resources. However, the verification of our programs by independent observers and the examination of our data by our university colleagues who were not involved in the Project will have avoided some of the criticisms that can be levelled against 'in-house' evaluation activities

What Questions did we want to Answer?

Data collected over the project's experimental period (see Figure 5.1) enabled a number of important questions concerning the provision of different early childhood programs for this group of disadvantaged Australian children to be answered. To determine which questions should be investigated, extensive interviews were held with educational administrators, teachers and community representatives. From a large pool of potential questions, a shorter list of five questions was drawn up, which represented the issues which recurred most often during the discussions. The questions were:

- Were the programs implemented as intended?
- What effects did the Project's activities have on the schools, parents and community?
- Does enrolment in preschool programs improve disadvantaged children's school-related achievement?

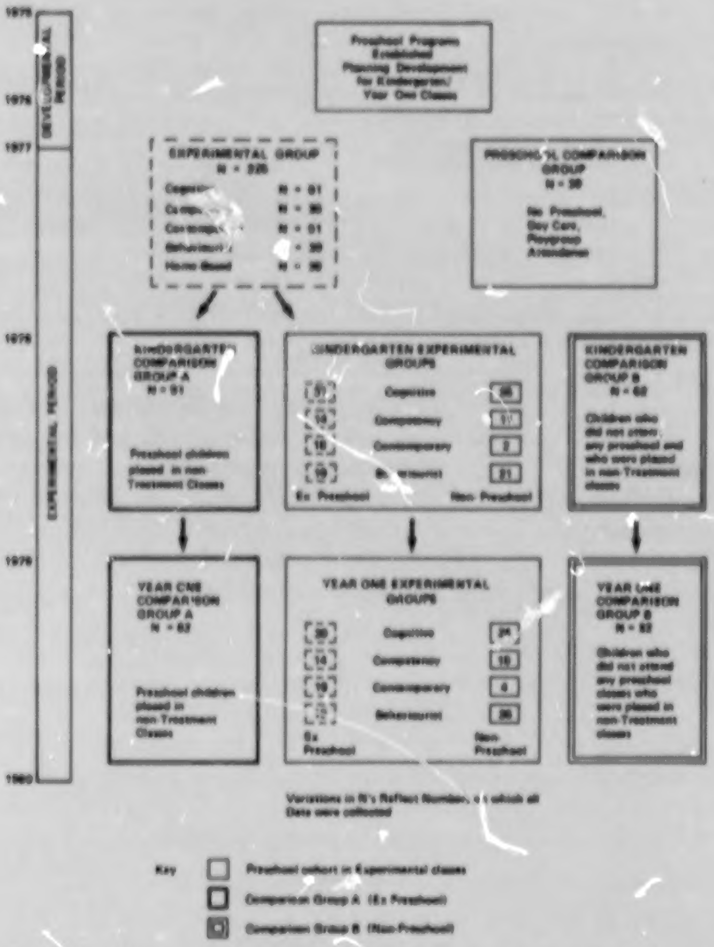

1975
1976
1977
1978
1979
1980
DEVELOPMENTAL PERIOD
EXPERIMENTAL PERIOD
Preschool Programs Established Planning Development for Kindergarten/ Year One Classes
EXPERIMENTAL GROUP N = 225
Cognitive N = 61
Competency N = 30
Contemporary N = 61
Behaviourist N = 39
Home Based N = 30
PRESCHOOL COMPARISON GROUP N = 30
No Preschool, Day Care, Playgroup Attendance
KINDERGARTEN COMPARISON GROUP A N = 51
Preschool children placed in non-Treatment Classes
KINDERGARTEN EXPERIMENTAL GROUPS
Cognitive
Competency
Contemporary
Behaviourist
Ex Preschool
Non Preschool
KINDERGARTEN COMPARISON GROUP B N = 62
Children who did not attend any preschool and who were placed in non-Treatment classes
YEAR ONE COMPARISON GROUP A N = 62
Preschool children placed in non-Treatment Classes
YEAR ONE EXPERIMENTAL GROUPS
Cognitive
Competency
Contemporary
Behaviourist
Ex Preschool
Non Preschool
YEAR ONE COMPARISON GROUP B N = 62
Children who did not attend any preschool classes who were placed in non-Treatment classes
Variations in N's Reflect Numbers on which all Data were collected
Key
Preschool cohort in Experimental classes
Comparison Group A (Ex Preschool)
Comparison Group B (Non Preschool)

Figure 5.1 **Diagram showing Project Experimental and Comparison Groups over Three Years**

- Does continuity of programming over three years have a marked effect on children's performances?
- Were these differential effects produced by the various programs?

A number of supplementary questions relating to differences in ability between sexes, the social development of children, the effects of the programs on children with different levels of ability, and the effects on attendance patterns are treated in the subsequent chapter as corollaries to these five questions.

One important issue should be raised at this stage. It was not the intention of the evaluation to answer the question 'What is the *best* program?'. It was believed from the Project's beginning that this was not an appropriate question to ask. The evidence of previous research into similar programs indicated that all the programs, when implemented correctly, should produce benefits for the children enrolled in them. The ideal position which the Project hoped to attain was that of providing educators and parents with information that would enable them to determine the type of early childhood program that best matched their own values. This approach can be expressed more simplistically as 'I hold *x* values about early childhood education, can you show me the results of a program that mirrors such values?'.

What Evaluation Procedures were Followed

Evaluation Design

To answer the questions posed, it was necessary to collect process and product data from four different sources: children, parents, school personnel, and the wider community. Data from these sources were collected by standardized and Project-developed cognitive and achievement measures, observational studies, interviews and official documents such as census data. Table 5.1 lists the categories of data that were collected over the three years and the major methods used for data collection.

To ensure some coherence in the analysis of the school-based data, an evaluation schema outlined by Cooley and Lohnes (1976) was followed. Essentially, this schema incorporates the analyses of relationships among the many variables from the four domains illustrated in Figure 5.2. In using this model it was essential to determine whether the variables in the first two domains were homogeneous. If that were the case, then the variables associated with the instructional dimensions and learner outcomes domains could be analysed separately, and then jointly for any possible interactions.

While at first glance this schema suggests a useful approach to educational evaluation, it does oversimplify the main influences that affect the educative process. In spite of useful attempts by different writers to develop a model of schooling (cf. Carroll, 1963; Harnischfeger and Wiley, 1976), no single theoretical model to guide empirical research in education has yet been advanced which incorporates all the elements affecting schooling. Hence, the Cooley and Lohnes schema should be regarded as one which provides an overall guide to evaluation.

The development, implementation and evaluation of the Project's activities took place over four and a half years, as shown in Figure 5.1. Two different periods are classified in the figure. These are the *developmental* and *experimental* periods.

Table 5.1 Project Data Sources and Major Types of Data Collection Procedures

Areas used	Data sources	Procedures followed
Medical	Child/parents	Interviews and examinations
Nutritional	Parents	Interviews and food diaries
School achievement	Children	Individual testing
Social development	Teachers' ratings of children	Rating scales
Classroom processes	Classrooms—children/teacher	Observational studies and checklists
Teacher and school administrators	Teachers and school administrators	Interviews/diaries
Parental/community	Parents and community	Interviews

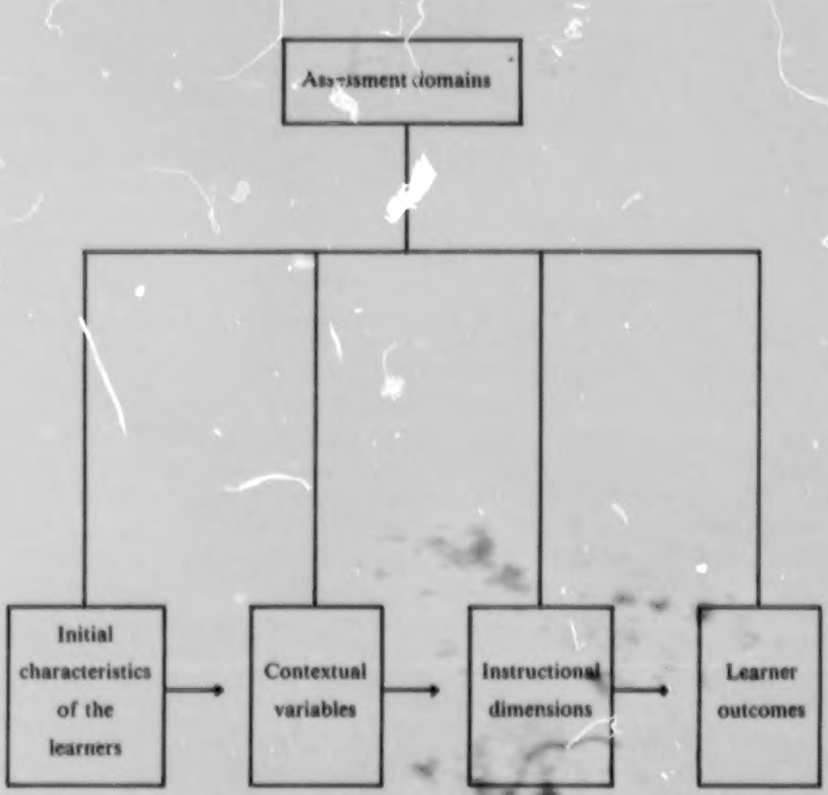

Assessment domains
Initial characteristics of the learners
Contextual variables
Instructional dimensions
Learner outcomes

Figure 5.2 Cooley and Lohnes Evaluation Model (1976)

Table 5.2 Data Collection Periods

Year	Data	Month
Preschool year 1977	Pretest	February
	Process observational data	July
	Post-test	November
Kindergarten year 1978	Pretest	February
	Process observational data	September
	Post-test	November
Year 1 1979	Process observational data	September
	Post-test	October

In the developmental period, children first enrolled in the preschool centres in 1975 and 1976. During this time programs were developed, implemented and refined and measures were evaluated for their potential contributions to the evaluation procedures. Data collected during the developmental period were used for formative program development and are not reported in this study.

The experimental period started with the enrolment of children in the preschool programs during 1977. This cohort was supplemented by a smaller number of children who enrolled in Kindergarten in 1978 but who did not attend the experimental preschool classes. The data reported in this book represent data collected on the group of children entering preschool in 1977 and their parents. The four centre-based preschool programs were continued in Kindergarten and Year 1 classes in the same schools. The majority of children enrolled in these classes had attended the preschool classes in the same school. The Home-based Program was not systematically continued in Kindergarten and Year 1 (see chapter 4). Data were collected in all the programs at the times shown in Table 5.2.

The design was necessarily quasi-experimental, as it was impossible randomly to allocate children, teachers and/or schools to specific programs. In the preschool year a *comparison* group was formed from children living in the area who had demographic characteristics equivalent to the preschool experimental group. The parents of this group of children volunteered their children for inclusion in the study. These children had not attended any other preschool, day-care or family play-group. In the Kindergarten year, these children were enrolled in non-Project schools in the area.

In the Kindergarten and Year 1 periods, two comparison groups were formed at each year level. The first, *Group A,* comprised children who were in the preschool experimental classes but who were placed in non-experimental classes in these two years. It can be seen from Figure 5.1 that the numbers of children in this group varied from Kindergarten to Year 1 from 51 to 62. This variation reflected the changes in the numbers of children on whom total data were collected in the testing periods. *Group ii* was made up of children who had not attended any preschool classes and who were not enrolled in any experimental classes.

The Numbers of Children involved in the Project's Evaluation

Figure 5.1 indicates the numbers of children in each group on which the major evaluation analyses are based. These numbers do not constitute the total numbers of children enrolled in all the respective classes or groups. Only children who attended the preschools for a minimum of 180 out of the 201 possible days and attended Kindergarten and Year 1 classes for at least 194 days out of a possible 204, are included in all subsequent analyses. Throughout the three experimental years, a constant check was made on the children who left the classes to determine whether any systematic bias was influencing parents in their decision to enrol their children in other schools due to changes in their residential addresses. Further, annual univariate analyses of variance, comparing the post-test scores of children meeting the attendance criteria with the scores of those who did not, reveal no significant differences between the mean group scores on the different tests. No explanantion can be given for the comparatively small size of the Competency Program's preschool classes. A survey of all the preschool-aged children in the school's catchment area revealed that over ninety per cent of them attended the preschool.

Ideally, the data collected in an evaluation study such as this should reflect the performances of all children on all measures. Unfortunately, the resources available were limited and the necessity to test all children individually made data collection time-consuming. Consequently data were collected on two specific groups. These were the *total* sample, being all the children in the experimental and comparison groups meeting the previously specified attendance criteria; and a *core* sample, being a stratified random sample selected from children in a total sample. In the preschool year the core sample was stratified by having equal numbers of children of both sexes randomly selected from the morning and afternoon sessions. The size of the core group was fixed at eight boys and eight girls per program and similarly from the preschool comparison group.

To determine how representative the core sample was of the total sample, one-way analyses of variance were performed comparing the performances of the two samples on four measures administered to both groups. No significant differences among the mean group scores of the two samples at the 0.05 level of significance were found. In addition the performances of the children in the morning and afternoon sessions of the centre-based preschool programs were compared by analysis of variance. No significant differences at the 0.05 level of significance were found between the mean group scores of the children in the two sessions on the pretest and post-test measures in the preschool year.

In the Kindergarten and Year 1 classes, with a reduction in the number of tests administered, it was possible to test individually a larger number of children. Table 5.3 reports the relative numbers of children evaluated by the different measures over the three experimental years.

One of the problems encountered in any such study is pupil attrition. In many ways the movement of children and their families from the area did not correspond with the high mobility percentages quoted in other studies (e.g. Phillips (1979) reported a twenty-five per cent change of schools). The lack of economic resources generally meant that families wishing to move away could not. Others, after the settling-in period, became used to the area and chose to buy their homes from the Housing Commission. However, with the increasing costs of providing welfare homes, the Commission has stopped selling its homes and, consequently, newly established areas such as Bidwill were occupied by rent-paying, rather than home-owning families, which again increased family mobility.

The Collection of Process Data within the Centre-based Programs

Within an educational setting there are a number of *process* variables that affect children's learning. They include the teachers' and learners' behaviours, the amount of time devoted to carrying out particular activities and the resources available. The evaluation model required that data be collected on the teachers' and learners' behaviours, for it was postulated that these were the process variables that would highlight the variability among the programs. To try to control the variability of these areas, every possible step was taken to control the environmental characteristics of the classes at each year level within the centre-based programs. All classes received equal distribution of resources and original imbalances were overcome by the allocation of supplementary resources. While the overall amount of teaching time available was the same for all programs, there were variations in the amount of time that teachers in each program devoted to teaching the same subjects. However, these were regarded as legitimate programmatic variations.

Development of the classroom observational instrument For the four centre-based programs it was decided to collect process data about the children's behaviours and the teachers' verbal behaviours. It was hypothesized that information from these two sources would enable the objectives of the process data collection to be achieved. The main observation instrument used in the Project was a modified version of the *Personal Record of School Experiences* (PROSE), originally developed

Table 5.3 Numbers of Children Tested on Various Measures at End of each Year[a]

Program	PSI	Boehm	Vis. Perc.	Aud. Perc.	Vocab.	PPVT	Pre-Read[c]	M-D Pre-Read	Neale Read	Maths—Cog[c]	Maths—Ach	Syntax[c]	Soc.Know.	Spelling	POS	KRS
Preschool																
Cognitive	61		61	61	61		19			15		19			61	
Competency	35		35	35	35		18			15		17			35	
Contemporary	51		51	51	51		21			14		17			55	
Behaviourist	39		39	39	39		12			13		11			39	
Home-based	39		39	39	39		-			26		23			-	
Comparison	39		39	39	39		34			-		13			-	
Kindergarten																
Cognitive		56				56		56		19	56		56			56
Competency		25				25		25		17	25		25			25
Contemporary		20				20		20		16	20		20			20
Behaviourist		40				40		40		16	40		40			40
Comparison[b]		62				62		62		-	62		62			-
Year 1																
Cognitive						54			54	22	54	54	54	54		
Competency						24			24	20	24	24	24	24		
Contemporary						22			22	20	22	22	22	22		
Behaviourist						45			45	20	45	45	45	45		
Comparison[b]						62			62	20	62	62	62	62		

[a] Refers to children meeting specified attendance criteria. Variations in numbers reflect absences on day of testing.

[b] Comparison group non-experimental Group B in Kindergarten and Year 1

[c] Administered only to *core* group.

Key

PSI	*Pre-School Inventory*
Boehm	*Boehm Test of Basic Concepts*
PPVT	*Peabody Picture Vocabulary Test*
Neale	*Neale Analysis of Reading Ability*
M-D	*Murphy-Durrell Reading Readiness Analysis*
POS	*Preschool Observation Schedule*
KRS	*Kindergarten Rating Scale*

by Medley, Quirk, Schluck and Ames (1968) to collect data about children's classroom behaviours for use in the ETS Head Start Longitudinal Study. The *Teachers' Language Instrument* (TLI) was developed specifically by the Project to collect data about teachers' verbal behaviours in the classrooms.

Selection and development of PROSE as a classroom observational instrument From the extensive review of classroom instruments undertaken by Medley and Mitzel (1963), Rosenshine and Furst (1973) and Simon and Boyer (1974), a short list of observational instruments designed to gather data on environmental and interactional dimensions present in the four programs was drawn up. Three instruments on the short list were field-tested in the classrooms during the developmental periods and the data analysed to determine the relative validity and usefulness of the instruments. Of the three, the *Personal Record of School Experiences* (PROSE) was judged best to meet the Project's purposes.

Successive trial testing of the PROSE instrument using a variety of observers on different occasions enabled modifications to be made to the original instrument. These represented the addition and deletion of variables included in the original instrument, in order to reflect the environmental and interactional situations in the five programs. A small number of additional variables were added to the preschool version of PROSE to enable it to describe the additional classroom behaviours found in Kindergarten and Year 1 classrooms. At each year level, the variables included in PROSE represented a selected sample of variables yielding maximal information about the classroom processes found in the four programs. The development procedure is summarized in Appendix A.

Observational periods To collect the PROSE data, times were selected when the programs had settled down and were operating as intended. During the observational periods no other data were collected. In the preschool classes PROSE data were collected in June/July, and in Kindergarten and Year 1 classes in September. The later times for Kindergarten and Year 1 classes were chosen because classes in these two years had not had the advantage of the developmental year that the preschool classes enjoyed. More observational sessions were established for the preschool classes than for the Kindergarten and Year 1 classes. The shortage of time caused by other developmental and evaluation activities during these two years necessitated this. Nevertheless, it was considered that the amount of data collected was more than adequate, if other observational studies are any guide (cf. Stallings and Kaskowitz, 1974, and Solomon and Kendall, 1979). Table 5.4 shows the number of observational sessions when data were recorded but does not indicate

Table 5.4 Numbers of Children in PROSE Observational Samples and Numbers of Observational Sessions

Period	Program				Number of observational sessions per program[a]
	Cognitive	Competency	Contemporary	Behaviourist	
Preschool	16	16	16	16	32
Kindergarten	12	12	12	12	12
Year 1	12	12	12	12	12

[a] Sessions refers to either complete a.m. or p.m. preschool sessions or complete morning, mid-day or afternoon sessions in the other years.

the number of sessions wherein the observers established inter-rater reliabilities.

Selection of children for observation Given the observational procedures followed with PROSE, it was impossible to collect process data on all children. Consequently, data were collected on the core groups (see this chapter, 'The Numbers of Children involved in the Project's Evaluation'). Table 5.4 indicates the size of these process sample groups. To ensure that the samples chosen were representative of the total class, teachers, aides and other adults were continually asked to indicate whether or not the selected children's behaviours were typical or atypical of the children in each class. No reasons were advanced for any changes to the composition of the core groups originally selected.

Teachers' Language Instrument (TLI) Teachers' verbal behaviours within the classrooms were chosen for analysis, as previous research had indicated that teacher variables are the single most important set of variables in ensuring successful implementation of a program (Simon and Boyer, 1974). These behaviours represent complex processes and are the vehicle for much of the transmission of information in a classroom, but they were not adequately described by PROSE data. Consequently, it was necessary to develop an instrument which would focus exclusively on these behaviours.

Development of the instrument After a review of the research on linguistic analyses of teachers' behaviours, it was decided to approach the task by utilizing the linguistic research of Halliday (1973). Halliday highlights the sociological roles of language by arguing that verbal communication takes place in a social context. Based upon his studies, the *Teachers' Language Instrument* (TLI) was developed by Project staff. This instrument enabled verbal episodes to be categorized for both their *mode* (i.e. linguistic behaviour) and *function* (i.e. meaning or affect). (While it is acknowledged that the TLI ignores the quality of coherence in language and that a single construction may have more than one function (Halliday, 1973), the use of the TLI permitted a more detailed description of teachers' language required by the Project's evaluation model than could possibly be collected by previously developed instruments.)

The TLI's *mode* categories were 'statements, questions, elicitors, reinforcers and facilitators'. These categories were subdivided into more specific language behaviours (see Figure 5.3). The *function* categories described the major effect or impact an utterance had, or was intended to have. They were labelled 'regulatory, heuristic, social, administrative and resource' (see Figure 5.3).

TLI data collection The data were collected from the four centre-based programs during July 1977 (Preschool) and July 1979 (Year 1). Lack of time, a common problem in most evaluation studies, unfortunately precluded the collection of data from the Kindergarten classes. The teachers in each program were video-taped and their verbal interactions were recorded in ten-minute segments on the form shown in Figure 5.3. The events of the day were sampled using a mixture of event- and time-sampling procedures. In addition, samples of teacher speech were recorded using radio microphones every fifteen minutes during the day, with a provision for the collection of extra data should a significant event occur between time-sampling periods. All contexts prescribed by the program, e.g. small-group/large-group/individual interactions, were audio- and video-taped for subsequent analyses.

Measures of Learner Outcomes

Our intention to broaden the evaluation base to incorporate the notion of *social competency* (Anderson and Messick, 1974) posed problems concerning the selection of appropriate measures. Social competency refers to children's school readiness, social and affective development, cognitive development, psychomotor development, self-concept and motivation, and locus of control. Yet the assessment of children's abilities or status in each of these areas would not produce an integrated evaluation of children's development. In spite of this, over the developmental years the Project attempted to develop and modify instruments in all of these areas.

It may be useful to review the procedures we used to select instruments. First, the literature on the evaluation of early childhood education was reviewed and those developmental areas most susceptible to influence by educational programs determined. This initial list was then reviewed by university lecturers, infant mistresses and teachers, and compared with the stated objectives of each program. Based on this

Function

	Regulatory				**Heuristic**			**Social**				**Administrative**	**Resource**	**Total score**
Mode	Motivation	Instruct	Control	**Total**	Evaluation	Knowledge	**Total**	Social interaction	Personal	Imagine	**Total**			
Stating														
Show														
Tell														
Lead														
Total														
Questioning														
Simple														
Open														
Socratic														
Total														
Eliciting														
Command														
Request														
Recognition														
Total														
Reinforcing														
Gen. Praise														
Spec. Praise														
Negative														
Total														
Facilitating														
Affirmative														
Response														
Total														
TOTAL														

Figure 5.3 Breakdown of TLI Mode and Function Categories

listing of possible evaluation areas, the available instruments were reviewed for their administrative practicality, appeal to children, psychometric properties and the relevance of their results for the Project's evaluation model. A short list of instruments was then finalized and their use re-evaluated against the criteria mentioned previously.

It was fairly obvious from the trial of the different instruments during the developmental years that confidence in the results of the administration of standardized tests to preschool-aged children must be qualified. Children at this age have relatively short attention spans and no prior experience in taking tests, a factor that quickly became apparent in the developmental years. Even though every attempt was made to test in a 'play' atmosphere and many of the measures incorporated games in their administration, the artifact of 'test-taking abilities' must be considered when evaluating results, particularly at the preschool level. Moreover, it was not always possible to determine the stability of the results on some tests. For example, instruments designed to evaluate children's locus of control, self-concept and motivation yielded widely different results when administered to the same sample of children over a time span as short as two weeks. We believed that this variability reflected the relative instability of preschool children's performances and their susceptibility to immediate environmental influences. Consequently, it was decided not to administer tests in these areas, given the relative dissatisfaction with their reliability and validity, but to gather evaluation data instead from observational instruments, teacher-rating scales and through the use of semi-structured situations wherever possible. Table 5.5 indicates the instruments used to evaluate children's school-related performances. It may be seen from Table 5.5 that the instruments used covered the areas of school-readiness, perceptual skills, language development, pre-reading, number, mathematical processes and social knowledge. Specific psychomotor testing was carried out as part of the medical evaluation. Teachers in the centre-based preschool and Kindergarten classes rated each child's social behaviour and development on a Project-developed instrument (*Preschool and Kindergarten Rating Scales)*. These ratings were made on each child for each month of the year. Unfortunately, no continuous rating scales were kept during Year 1, as teachers were asked to complete other rating schedules.

Reference to Table 5.5 shows that no general intelligence instrument was included in the evaluation measures in spite of claims by researchers such as Coleman et al. (1966) and Cooley and Lohnes (1976) that it is an appropriate measure of school outcomes since 'conventional school assessment is shown to be supersaturated with a general intellectual

Table 5.5 School-related Measures administered to Children across Three Years

Area	Preschool	Kindergarten	Year 1
General cognitive/Achievement	PSI	Boehm	—
Perception	Visual	—	—
	Auditory	—	—
Reading	Pre-reading	Murphy-Durrell	Neale Analysis
Language	Vocabulary	PPVT	PPVT
	Syntax	—	Syntax
Mathematics	Cognitive	Cognitive	Cognitive
	—	Achievement	Achievement
Social knowledge	—	Social knowledge	Social knowledge
Spelling	—	—	Spelling

Key

PSI	*Pre-School Inventory*
Boehm	*Boehm Test of Basic Concepts*
PPVT	*Peabody Picture Vocabulary Test*

development factor' (Cooley and Lohnes, 1976:96). The programs had a wider range of cognitive objectives than those sampled in general intelligence tests. As Madaus, Airasian and Kellaghan (1980:123) argue 'this is not to deny that general ability or intelligence is not an achievement in the broad sense of the term. Neither does it deny that schools may affect its development'. Rather, it was believed that the score on such a test at entry to preschool and subsequently (until age six) was a surrogate assessment of the child's home background and genetic endowment. It was decided that Bloom's (1976) advice to focus on the use of achievement tests rather than on the use of a global intelligence test, was more appropriate for the Project's evaluation needs. To be consistent with this approach the *Peabody Picture Vocabulary Test* (PPVT) was used as a measure of vocabulary rather than a measure of verbal intelligence, as suggested by Rescorla and Zigler (1981).

One issue that confounds any evaluation of children of this age range is the need to use different instruments over a three-year period to evaluate performances in curriculum-related areas. This change in the instruments over the period is caused by the specificity of the content of some instruments, the restricted age ranges over which the instruments are valid, and the comparatively rapid progress of children's skill development. For example, preschool and Kindergarten children can have their pre-reading skills assessed but to do so in Year 1 classes, when most Australian children are reading, is not meaningful, as most children would have mastered the skills assessed by such tests. Children at this year level should be assessed on either standardized or criterionreferenced reading tests in order to obtain meaningful information about their reading performance.

When changes were made in the instruments used, care was taken to ensure that the same underlying attribute was being measured. Usually this was done by examining the theoretical constructs of the tests under review and examining the correlations between the two instruments. As the span covered by the Project was three years, and as we were analysing group scores rather than individual scores, it was not considered necessary either to relate the results to a common scale or to develop a model for relating the measurements on different occasions along the lines suggested by Goldstein (1979). The changes in the instruments over the period, while creating subsequent analysis problems, were essential.

Data Collection Procedures

To overcome the problems of the effects of experience in 'test-taking', special attention was paid to ensure that the data were collected in situations where the children were at ease and in a known environment. The following procedures were also used:

1. All testing was carried out by graduates or undergraduates in education and psychology who had experience in testing young children.
2. All testers were trained in the use of the instruments they were to administer in order to ensure standardized administrative procedures. Information about test constructs, the materials required, the evaluation of four- to six-year-old children, and the purpose of the research were introduced during the training situations. Before the testers were allowed to test any children, their performance in testing children not involved in the study was monitored and, where necessary, remedial steps to improve testing procedures were instituted. The subsequent testing performances were also monitored.
3. All testing was carried out individually.
4. The order of the testing was established to ensure that, over the total testing period, the first test which the children did was the 'easiest' and the most difficult, the last.
5. No testing period exceeded twenty minutes.
6. The testers were rotated among the programs.
7. No testing for the preschool pretest period was carried out until the children had been attending the preschools for at least three weeks.
8. All testers indicated on the scoring sheets any difficulties that may have occurred during the test situations.
9. As it was thought neither practical nor desirable for the large

number of tests in the preschool programs to test the preschool comparison group of children in their homes, a restricted number of testers was used to test this group.

10 Because of the likelihood of disruption to interactional patterns by the use of outside testers, the majority of the data collected in the Home-based Program were collected by the teachers who were similarly trained and their performances monitored.

11 All teacher and parental interviews were conducted individually: the parents by trained adults living in Mt Druitt, and the teachers by one of the Project staff.

12 Nutritional data were collected by postgraduate students enrolled in the Diploma in Human Nutrition course at Sydney University, under the supervision of their lecturers.

13 Medical data were collected by the medical and paramedical officers at the Mt Druitt Polyclinic, a unit of the Health Commission of NSW.

What were the Characteristics of the Children in the Evaluation Study at the beginning of the Preschool Year?

The evaluation model of Cooley and Lohnes requires that information be collected about the initial or background characteristics of the children in the study. If the initial characteristics of the children in the study are homogeneous, the relationships in the two last domains of the model may be examined coterminously. The information presented in chapter 3 details the relative homogeneity of the listed variables and highlights some of the disadvantage of children, families and schools of the area. The importance of the role of home background variables and of students' genetically determined abilities on their subsequent school learning has been highlighted by a number of studies (cf. Bloom, 1964, 1976; Jencks et al., 1972; Keeves, 1972). For example, Bloom asserts:

> Cognitive entry behaviour can account for up to one half ($r = +0.70$) of the variance on relevant achievement measures over subsequent learning tasks. (Bloom, 1976:68)
> Affective entry characteristics can account for up to one fourth ($r = +0.50$) of the variance on relative cognitive achievement measures. (Bloom, 1976:104)

To delineate the children's characteristics at the beginning of the study, demographic, medical, nutritional, cognitive, language and school achievement data are presented. These data were collected from the preschool and non-preschool groups during the beginning of the 1977 school year.

Table 5.6 Fathers' and Mothers' Educational Levels

Last class attended in school		Father %	Mother %
Form or Year	1	4.9	2.5
	2	23.8	29.5
	3	37.7	50.0
	4	17.2	10.6
	5	2.5	1.6
	6	5.7	3.3
No high school education		8.2	2.5
Percentage obtaining Intermediate or School Certificate or higher qualification[a]		55	46

[a] The Intermediate and School Certificate examinations represent completion of three and four years of high school education respectively.

Children's Demographic Data

The data presented in Tables 2.2 and 5.6 reveal a population with relatively homogeneous demographic characteristics. There were no significant differences among the mean scores of the listed variables across all programs and the non-preschool comparison group. The majority of fathers worked in semi-skilled or manual occupations. Over half of the mothers did not obtain the Intermediate or School Certificate (the first of the external or moderated school examinations in secondary schools), and the majority left school as soon as they had reached the statutory school-leaving age.

While the data do suggest a relatively homogeneous population, they do not reflect the apparent heterogeneity in its familial life-styles. At best these traditional indicators of socio-economic status are approximations for the dynamics that help determine children's achievement. To be able to categorize the existing differences among the families was too great a task, given the time and resources necessary. However, case studies of three 'average' families from the comparison group highlight the variability in the child management styles of some of the parents. The behaviours noted in the three case studies did not accord with professional opinions of the prevalent child-rearing practices of the majority of families in the area, yet such cases are hidden when the traditional statistics are produced.

CASE STUDIES

Susan

Susan is the second child in a family of three, her elder sister started school this year. She is an alert, outgoing, happy child, capable of conversing intelligently with the interviewer (a stranger) with no signs of nervousness. Her spontaneity in test and play situations was notable. The home environment, however, presents a paradox. Her mother is warm and supportive, arranges her own life around the needs and desires of her children, spends considerable time playing with them and organizing materials for painting, cutting out, pasting and so on and is aware of the importance of play with appropriate toys and materials for young children's intellectual development. The toys are organized in their separate containers, each one having to be packed up and put away before another can be asked for. Books are kept out of the children's reach and they have to ask when they want to look at a book. The parents read them books regularly.

Restrictions are imposed in other areas as well. The children never play with children outside their own family and are not even allowed into the backyard unless their mother is with them. This excessive concern for their safety seems to have arisen from the death of one of the mother's brothers in a car accident. She feels that if they are in the backyard alone they might go out the gate and onto the road, which is very quiet with few cars about.

Despite this apparently over-organized, restricted environment, the children are obviously happy, intelligent and outgoing. An explanation can perhaps be found in the responsiveness of the environment. Within the ordered framework, the children's suggestions, requests, decisions and so on are taken up and acted on. Their mother, while predetermining how things are done, is ever ready to allow the children to decide what will be done. She listens to and talks with them readily and is happy to do so.

The effect of restricted access to both adults and children is perhaps most apparent in Susan's role play with dolls in which the mother's modelling influence is well portrayed. She is very conscious of her female role in the family.

Jeffrey

Jeffrey belongs to a close-knit Polish family who value retaining certain aspects of their Polish culture. Although the parents speak only in English to each other, they deliberately spoke to Jeffrey only in Polish until he was three years old to ensure that he learnt their first language. They began speaking to him in English recently to prepare him for school and he readily made the transition.

His mother regrets that he cannot attend preschool, as there are no other children nearby for him to play with. When his older sister goes to a friend's house to play after school, Jeffrey is not allowed to go because his mother feels he is too young to play their games properly. Quite often he visits his mother's friends who have children. He also has frequent contact with his father who starts shift-work in the mid-afternoon. He sometimes complains that he has no one to play with, apart from his young baby brother, but his mother copes with this by suggesting things for him to do, getting out a toy or building set that he has not played with for a while, playing games with him and talking to him a lot. He enjoys talking with both his parents and constantly tells them things or asks questions.

Again it is a warm and responsive environment in which the adults are willing to spend time actively involved in their children's activities.

Lenora

In distinct contrast to the previous two homes, Lenora's house is poorly furnished, in need of repair and has a general atmosphere of poverty about it. There are three children in the family, one brother older than Lenora and one younger sister. Her mother likes Lenora to spend a certain amount of time each day at home with her, but sometimes allows Lenora to cross the road to play with a friend. Her father is very strict about conventional ways of behaving, such as 'table manners, little girls not wearing make-up, children doing as they are told', but quite happily shares in the family chores such as cooking and putting the children to bed, to enable his wife to have a night out regularly.

Despite recurrent illness, her mother places the children first and makes frequent overt expressions of her love and affection for them. She times her household chores so that she can watch the children's television programs with Lenora and then plays the games from the program with her. Lenora is encouraged in her 'little mother' role-playing by her mother, who also expects her to help with household chores. It is clear to the children that their mother enjoys having them around and would rather have their friends come in to play than have them all going elsewhere. The family has a good supply of books and as well each child has hisher own particular shelf of books. It is not uncommon for the eldest child in the family to spend his pocket money on books.

Lenora's mother is constantly imparting knowledge to her in a most natural fashion as an integral part of the ongoing events and makes extensive use of questioning in her discussions with her daughter.

• • •

Comparison group Originally the study called for matching the experimental groups with a comparison group of children from the same school catchment areas who did not attend any preschools or day-care centres during the preschool year. In order to recruit the children for the comparison group, notices were sent to the parents of children in the catchment areas requesting their involvement with the study. It was pointed out to the parents that involvement would mean their children would be evaluated on the same measures as the preschool children at the beginning and end of the year. Unfortunately, while there were sufficient children of suitable age in the catchment area, insufficient parents volunteered their children for the study.

To obtain a comparable group of children, parents in adjacent localities where there were no preschools open were invited to join the study. Fortunately, sufficient numbers volunteered (N = 60) to form the preschool comparison group. Only thirty-nine remained in the preschool comparison group at the end of the year, as some of the parents enrolled their children in a newly established preschool centre. It must be stressed that this comparison group was made up of families who may be termed 'outgoing', for they were prepared to allow strangers into their homes to evaluate the performances of their children. The demographic characteristics of the children in the preschool comparison group matched those of the children enrolled in the experimental groups (see Table 2.2).

Home visits to the preschool comparison group to gather data were necessary on an average of once a fortnight over the evaluation period. This frequency was due to the need to test the children, and to meet the ethical demands of reporting generalized information about the children back to their parents. Visits of a social nature occurred when parents invited the research assistants to morning and afternoon teas, and it became difficult for Project staff to avoid such commitments and yet maintain harmonious relationships with the parents. Not surprisingly, the research assistants constantly commented that the main topic of conversation was the children's development, and all remarked on how supportive and concerned the parents were about their children's development. Often advice given during a discussion on some aspect of child-rearing practice would be seen to have been adopted on later visits. What in fact seemed to be happening was that a subtle 'de facto' treatment group had been established.

To verify this outwardly observed concern for their children's development, data were collected on the mother's and/or father's daily interactions with their children. These data were collected by having the parents complete diaries of their children's behaviours and their interactions with them over a two-day period. Given that the parents would in such a situation tend to present a more ideal than true version of reality, the diaries did give some confirmation of the research assistant's views on the child-rearing competencies of the parents.

Coupled with their stated and practised concern for their children's development was the fact that these families' participation was voluntary, and it became more and more obvious that the preschool comparison group was a biased sample of the families in the area. Their behaviours did not accord with our and other educators' and psychologists' knowledge of the prevalent child-rearing practices of the majority of families in the area.

The Medical and Physical Conditions of the Children

Once the children had enrolled in the preschools, a general clinical examination of them was undertaken by the medical and community nurses associated with the Mt Druitt Polyclinic of the Health Commission of NSW. The purpose of this examination was to determine whether any of the children needed general or specialized medical treatment, and to gather data on the medical history of the children and their families. Information about the children's medical history was obtained by interviewing one of the child's parents (usually the mother) and later by cross-checking these data with records at the hospital where the children were born. Because some children were born in other countries and because sometimes hospital records were incomplete or missing, it was not possible to cross-check all histories, though approximately ninety per cent were cross-checked. Immediately after the recording of histories, the children were examined by the medical officers.

One of the problems in presenting the medical and nutritional data is the lack of comprehensive Australian statistics which would enable comparative statements about the medical conditions of the Project's children to be made. Normative data were only available for height, weight and head measurement. The data were examined by medical staff at the Mt Druitt Polyclinic and by paediatricians at The Prince of Wales Children's Hospital, a major teaching and research hospital in Sydney. The qualitative comments made in the following paragraphs reflect their interpretations of the data.

The overall data indicated that the majority of the children were physically healthy and had received adequate medical care. Figure 5.4 presents the data on the children's vision, ear, nose and throat (ENT), pulses and blood pressure, urine and hand/eye dominance. Of those children who had abnormal vision, only three per cent had not received corrective treatment. Hearing losses were generally either high or low frequency in one ear, but did not apparently yet need the fitting of a

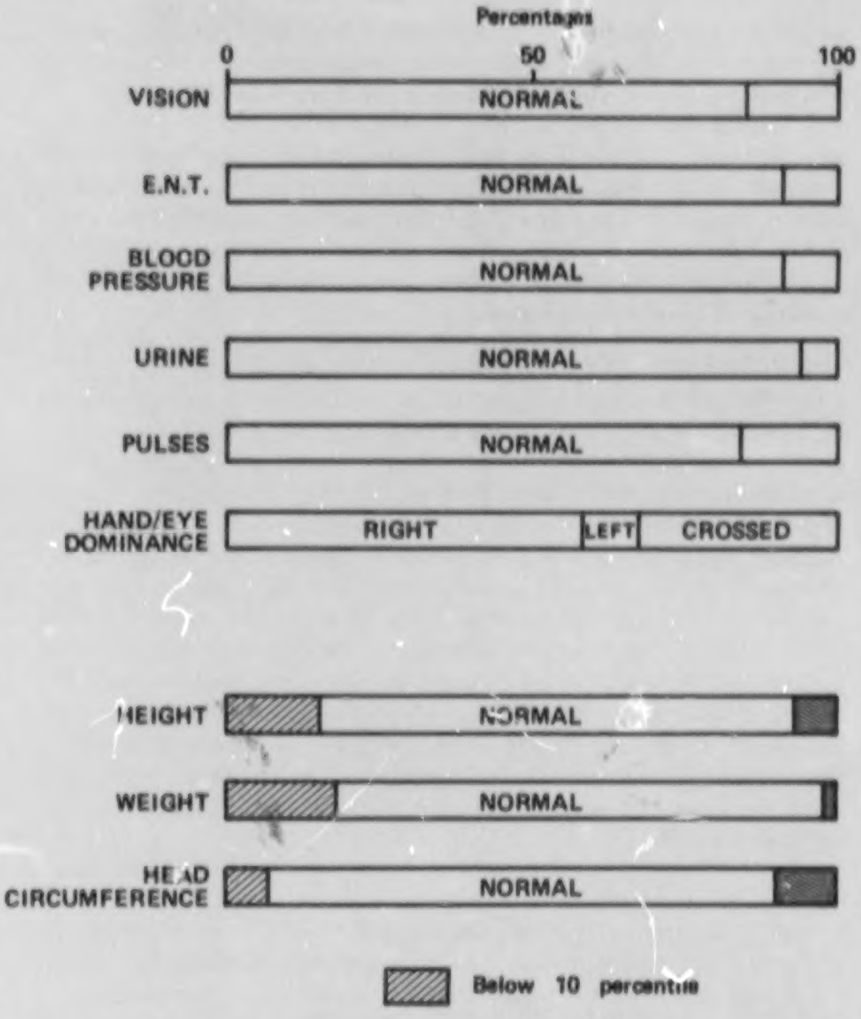


Figure 5.4 Physical Conditions of Preschool Children

hearing aid. The relatively large percentage (thirty-three per cent) of children with mixed dominance is difficult to explain, but is consistent with the development of the physical-motor co-ordination of children of this age. Unfortunately, the absence of comparative data made any further investigation difficult. There were a substantial number of children who were below the tenth percentile in height and weight compared with the general population.

When asked to comment upon their children's past medical history, eighty-seven per cent of the parents indicated that their children's health was 'normal'. Ten per cent of the children required dental treatment. Ninety-three per cent were judged to have normal skin condition and ninety-eight per cent showed normal cardiovascular conditions. Of those who had an abnormal cardiovascular condition, rheumatic fever or chronic heart disease had already been diagnosed and previously treated. Three per cent of the children had asthmatic problems, though twelve per cent had recurrent coughs or bronchitis. No children had orthopaedic problems, reflecting the practice of parents not to enrol such children in the preschools, rather than indicating an absence of these conditions in the area.

An examination of birth records revealed no apparent gross abnormalities. Seventy-seven per cent of the mothers were aged between 20 and 29 when their child was born, with only seven per cent being less than 20 years of age. Only two per cent of the children were born prematurely (i.e. less than 31 weeks) and in fifteen per cent of the cases, instrumental delivery was necessary. Thyroid disorders were not diagnosed among any of the children. Five per cent of the children were judged by the medical officers to be mentally retarded and less than one per cent of the children had had a *petit mal* epilepsy diagnosed.

To determine the children's motor abilities, several items from the motor section of the *McCarthy Scales of Children's Abilities* (McCarthy, 1972) were administered to the children. The results of these tests are shown in Table 5.7. Extrapolation of these results from the scale index equivalents of the McCarthy scales suggests that the children's performances were average for their age range. The medical data in Table 5.7 suggest that as far as such data can indicate, the children under examination were physically and medically 'normal'.

Children's Nutritional Assessment

The effects that nutritional factors can have on children's physical and cognitive development have long been established (cf. Read, 1972). Therefore, it was necessary to investigate the food habits of children enrolled in the preschools to determine whether such habits could represent health problems for the children. Originally it was planned to determine the nutritional status of the children by analysing samples of the children's blood as well as interviewing parents about their children's food habits. However, the closure of the laboratory where the blood samples were to be analysed forced the cancellation of this particular aspect of the study.

Table 5.7 Mean Scores of Children's Performances on Selected Motor Co-ordination Items from *McCarthy Scales of Children's Abilities*[a]

Area	Program				
	Cognitive	Competency	Contemporary	Behaviourist	Home-based
Leg co-ordination	10.8 (2.07)	9.2 (4.26)	10.5 (2.86)	9.8 (1.82)	10.2 (2.09)
Arm co-ordination					
Ball bouncing	2.0 (1.10)	1.8 (1.69)	1.9 (0.97)	1.7 (1.52)	1.4 (1.31)
Catch game	5.0 (1.99)	4.0 (2.54)	3.8 (2.02)	2.2 (2.02)	3.1 (2.65)
Target game	2.5 (1.88)	2.1 (1.73)	2.4 (1.70)	2.3 (2.05)	2.8 (1.80)
Imitative action	3.9 (0.37)	3.3 (0.95)	4.0 (0.00)	3.3 (0.89)	3.4 (0.61)

[a] Standard deviations given in parentheses

The Nutrition Section of the School of Public Health and Tropical Medicine at the University of Sydney undertook the nutritional assessment of the children. Parents were approached at first by letter from the Polyclinic seeking their co-operation in the study and after follow-up activities less than two per cent refused to be interviewed. The mothers were interviewed in their homes on the food intake of the target child during the previous twenty-four hours. Food diaries were left in the homes for the mothers to complete for the next two days and the children were interviewed to determine what they had eaten away from home. The food intakes were analysed by a computer program based on the *Tables of Composition of Australian Foods* (Thomas and Corden, 1970) and on additional manufacturers' information. Parents were provided with individual analyses of their child's food intake and a comparison made with 'recommended daily allowance' for children of a similar age. It was pointed out to parents that individual variations do occur in dietary requirements and that the 'recommended daily allowances' were estimates of the amount of nutrients necessary for good health. Follow-up meetings were held with interested parents to explain the results in more detail.

The results of the survey are shown in Table 5.7 where the percentage of children with dietary intakes below those recommended by the National Health and Medical Research Council of Australia (1970) are set out. Examination of Table 5.8 reveals that many children exceeded their anticipated energy requirements. The largest percentage below the recommended level reported was twenty-two per cent for energy, indicating that seventy-eight per cent of the children exceeded the recommended nutritional intakes for energy. Correspondingly higher percentages of recommended intakes are shown for other nutrients.

Table 5.8 Nutrient Intakes of Preschool Children

Nutrients (units)	Average nutritent intake	% of children with intakes below recommended levels
Energy (MJ)	7.7	22
Protein (g)	59.3	5
Calcium (mg)	739.0	15
Iron (mg)	10.6	6
Retinol activity (mg)	763.0	6
Thiamine (mg4.186 MJ)	0.7	8
Riboflavine (mg4.186 MJ)	1.2	2
Niacin equivalents (mg4.186 MJ)	13.0	0
Ascorbic acid (mg)	103.8	16

For the most part, the children appeared to have adequate nutritional intakes but it is difficult to comment further given the paucity of available Australian data. Further, the results are somewhat confounded by the fact that parents volunteered to take part in the study. It is possible that greater nutritonal deficiencies may be found in the community had all parents of four-year-old children in the area been surveyed. Perhaps the greatest point of concern arising from the study was the finding shown in Table 5.9 that over a third of the children had a dietary deficiency of at least one nutrient.

The Children's Cognitive, Language and School Achievement Performances

The demographic, medical and nutritional data suggested that no abnormal conditions were present among the children enrolled in the preschool and comparison groups in 1977. To collect data on the cognitive, language and school achievement performances of the children enrolled in both groups, the children were individually tested on the measures indicated in Table 5.5. As this was the first time the children had ever been asked to attempt such tests, considerable

Table 5.9 Distribution of the Intake of the Number of Nutrients falling below the Recommended Levels

Number of nutrients	Percentage of group
1	26.7
2	4.7
3	5.8
	Total 37.2

Table 5.10 Means, Standard Deviations and Analysis of Variance Results on Preschool Pretest Scores administered to Experimental and Comparison Groups

Measures	Experimental groups										Comparison group		$p <$[a]
	Cognitive		Competency		Contemporary		Behaviourist		Home-based				
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
Preschool Inventory	16.6	5.4	17.7	4.7	18.6	5.2	18.4	4.9	15.9	5.3	17.6	4.7	ns
Perception													
Visual	10.7	2.4	11.2	1.9	11.7	2.4	11.2	2.0	11.5	3.2	11.2	2.1	ns
Auditory	17.1	3.8	18.6	2.9	16.6	3.6	17.5	3.0	18.3	5.0	19.4	2.0	0.05
Language													
Vocabulary	22.4	5.5	21.5	5.3	22.0	5.8	22.9	5.5	22.4	5.2	24.6	4.8	ns
Imitation	18.2	2.4	17.7	2.1	16.2	3.4	18.0	1.3	16.2	2.8	17.7	2.8	ns
Comprehension	11.7	3.1	11.0	2.7	12.0	3.1	13.0	2.9	10.2	3.1	10.6	2.4	ns
Production	11.1	3.8	10.8	2.4	12.1	2.9	10.3	2.8	10.7	3.1	10.2	3.1	ns
Pre-reading	12.6	3.9	11.2	3.0	13.0	3.3	12.9	3.0	-	-	12.4	3.3	ns
Mathematics													
Seriation I	2.5	0.6	2.8	0.4	2.6	0.5	2.8	0.4	2.7	0.6	-	-	ns
Seriation II	20.7	5.5	21.1	5.5	21.2	5.1	21.3	3.6	19.0	3.9	-	-	ns
Seriation III	8.9	2.4	9.4	1.8	8.5	2.5	8.5	2.3	7.5	2.4	-	-	ns
Numeration I	3.3	1.4	3.0	1.2	3.4	1.0	3.0	1.2	2.7	1.0	-	-	ns
Numeration II	1.3	0.6	1.4	0.7	1.4	0.8	1.6	0.5	1.2	0.6	-	-	ns
Numeration III	2.5	0.9	2.1	0.7	2.0	0.8	2.1	0.8	1.9	0.9	-	-	ns
Conservation	0.5	0.6	0.4	0.8	0.0	0.0	0.2	0.6	0.6	0.9	-	-	ns
Spatial	6.6	2.3	7.8	1.9	7.3	2.6	7.8	1.7	6.8	1.8	-	-	ns

[a] Differences between group means tested with one-way analysis of variance and p values < 0.05 indicated.

attention was paid to making the children feel at ease and to involving them in the 'games' features in the tests. All testing was completed six weeks after the commencement of the preschool year to ensure that the possible effects generated by preschool attendance would be minimal. The means and standard deviations of the groups' performances on the tests used at the beginning of preschool are provided in Table 5.10. The table also presents the results of the analyses of variance performed on all the pretest scores of the children in the preschool and comparison groups. It can be seen from this table that only one test, auditory perception, has an *F*-value that is significant at the 0.05 level.

Apart from the results on the auditory perception measure, it is believed that the performances of the groups on the measures listed in Table 5.5 are comparable and probably from the same population detailed in chapter 3. This finding complements the evidence already presented about the medical, demographic and nutritional data of this sample of children. There were few extreme high and low scores in the distribution of the scores on the various measures, suggesting that there is less likelihood for the statistical artifact of regression to the mean to occur (Campbell and Erlebacher, 1970).

Analytic Procedures for School Achievement Data

It is useful at this stage to present an overview of the procedures used in analysing the school performance data. It was indicated earlier in this chapter (see 'Evaluation Design') that the evaluation model for this study is based on the Cooley and Lohnes model in which variables in the first two domains are examined for their relative homogeneity, and then the variables associated with the instructional dimensions and learner outcomes are analysed. Earlier sections indicated that the initial characteristics of the children are comparable, while the information presented in chapter 2 outlined the similar contextual situations pertaining to each classroom. While the contextual variables for the Home-based Program were purposefully different, they were not sufficiently different to warrant discarding the scores of the children in this program from the subsequent analyses.

Consequently, the analyses presented in the following chapters examine the instructional dimensions present in each program and the children's scores on the various measures at the end of each year. Generally, multivariate analyses of variance procedures (Clyde, 1969; Finn, 1976) were used to analyse the scores. For the preschool year the children's scores from all five programs and the comparison group are presented in the analysis. In subsequent years, the scores of the children in the four experimental groups and the two comparison groups (see Figure 5.1) are analysed. As there was no systematic continuation of the

Home-based Program into Kindergarten and Year 1, the results of the children in this program are discarded from the data analyses for these years. Table 5.3 details the numbers of children tested on the various measures over the three years.

In the preschool year, the scores of all the children in the morning and afternoon sessions in each program were aggregated to yield group scores, since analysis of variance of the pretest and post-test scores of the different sessions of the preschool groups had indicated that there were no significant differences between the mean scores of the groups of children in the two sessions. Similarly, analyses of the process data revealed no significant differences in the variances associated with the process variables in the morning and afternoon sessions.

Because the *F*-value for the pretest auditory perception scores was significant at the 0.05 level, the post-test scores for this measure were analysed by analysis of covariance, with the pretest score as the covariate. As the pre/post correlation between these two sets of scores was moderately high (0.68), no corrections were made for unreliable test scores (cf. Lord, 1960; Campbell and Boruch, 1975). Multiple regression analyses indicated that there was no interaction between the covariate and the factors used in the covariance analysis. Hence, it is believed that the use of covariance was appropriate on this particular occasion. (Analytic procedures used with the process data and minor variations to those outlined above are detailed in later chapters.)

It should be remembered that the study is quasi-experimental (Cook and Campbell, 1976), as the zoning system for school admissions followed by the Department of Education in Mt Druitt precluded the random assignment of children to preschools. Moreover, parents obviously had the right to enrol or not enrol their children in the different preschools. Such effects complicated the evaluation of the study. For example, it was not possible to use 'gain' or 'change' scores from pretesting to post-testing periods in any meaningful way, primarily 'because such scores are systematically related to any random error of measurement' (Cronbach and Furby, 1970). Moreover, though the pretest scores showed that the groups were comparable, the recruitment procedures used to establish the comparison group resulted in the group probably coming from more 'motivated' home backgrounds reflecting intangible factors that are difficult to quantify. And finally, it is inappropriate to generalize the study's results beyond the particular sample, owing to the absence of random assignment of children to treatment groups and the confounding effects caused by having a limited number of teachers to each program. One way to overcome the difficulty of generalizing the study's findings would have been to replicate the programs in a variety of settings, which was, however, clearly beyond the Project's resources.

Summary

This chapter introduced the five questions used to structure the results in later chapters. Moreover, it has presented demographic, medical, nutritional, cognitive, language and achievement data about the children in the preschool and comparison groups at the beginning of 1977. Generally, these data indicated that the initial characteristics of the learners and the contextual influences were comparable. Few variations were found among the variables under analysis and the only significant difference among the pretest mean scores of the children in the various groups was on the auditory perception measure. However, it was suggested that there was some heterogeneity present among the children and the families living in the area which was not discovered by the instruments used in this study. The problem of how far one can go to obtain information while respecting families' privacy is a difficult one to resolve. The Project deliberately took a non-assertive and undemanding stance in making such decisions.

In chapters dealing with the children's school performances, the data collected at the end of the year are analysed for answers to the questions formulated at the beginning of this chapter. The process data collected within the programs were usually collected in the middle of the year when the programs were implemented as intended. Parental, school and community data were continuously collected during the Project, and are presented in a separate chapter.

6

Process Data within the Programs

Given the broad spectrum of the Project's objectives, it followed that the variety of planned and unplanned activities originated in both the schools and the community. In order to describe the range of activities effectively, it is necessary to distinguish between those that occurred within the classrooms of the different programs and those that took place within the wider community. This distinction is artificial and does not reflect the continuous endeavours made to relate school and community activities. Nevertheless, the data presented in this chapter relate to the ongoing school-focused activities within each program.

Many authorities have supported the collection of *process* as well as product data (cf. Dunkin and Biddle, 1974; Gage, 1978; Hall and Loucks, 1977; Snow, 1974). The collection of process data about the different centre-based programs enabled Project personnel and teachers to formulate an objective account of what went on during the programs' prescribed teaching periods. More specifically, analyses of the process data enabled a check to be made as to whether the programs were implemented as intended, and unintended events to be monitored. (It should be remembered that the reported data cannot be generalized beyond these settings.)

The collection of process data within the Home-based Program had a different character. The eclectic nature of the program made it difficult to specify variables which would help to identify successful program implementation. In the broadest sense, the teachers were implementing the program when they made regular visits to children's homes. However, it was the nature and quality of the interactions with children and their parents that would characterize this program as being more than just casual visits by teachers with parents. Hence, the program's focus was on changing or structuring in different ways some of the daily interactions between parents and their children. With some parents, the changes were more subtle, and focused on different areas than was the case with other parents. Again, the overtly interactionist roles of the Home-based teachers, who gradually changed over the year from being initiators to responders, made the design of process instruments for use within the program a formidable task. This difficulty was greatly compounded by the wide variability in the environmental characteristics of the homes of children enrolled in the program. Therefore, the process data collected within the Home-based Program attempted to record the teacher/child/parent interactions, as well as the parents' perceptions of the effects of the program upon them—areas which previous studies have suggested were important foci for such a program (cf. Levenstein, 1977; White et al., 1973).

Analyses of the PROSE Data from the Four Centre-based Programs

It has been stated that the collection of process data enabled two objectives to be attained. These were checking whether the programs were implemented as intended and monitoring for unintended events in the classrooms. Both of these objectives have been integrated into the subsequent discussions.

It was originally intended to amalgamate the classroom data collected over the three years into one data set. However, modifications made to PROSE after the preschool year did not allow this. Consequently, data relating to each year's interactions are presented in separate sections.

Appendix A (Tables A-1 and A-2) designate the percentages of tallies recorded for each of the PROSE *statement* and *context* variables over the three years. The following descriptions are based on combinations of PROSE variables listed in Tables A-1 and A-2.

Were the Programs implemented as intended?

Describing educational processes and the variations among different programs is not an easy task (Stallings, 1975), yet it is one that has to be attempted if the classroom practices are to be evaluated against program intentions. PROSE data enabled a check to be made on the fidelity of program practices to the objectives and learning experiences described in chapter 4. In deciding which PROSE data had to be used in the analyses, it was believed that three data sets would enable the reader to determine whether the programs were implemented as intended. These data sets comprised:

1 the children's interactional patterns within the program;
2 the adults' interactional patterns within the programs; and
3 the environmental conditions existing in the four programs.

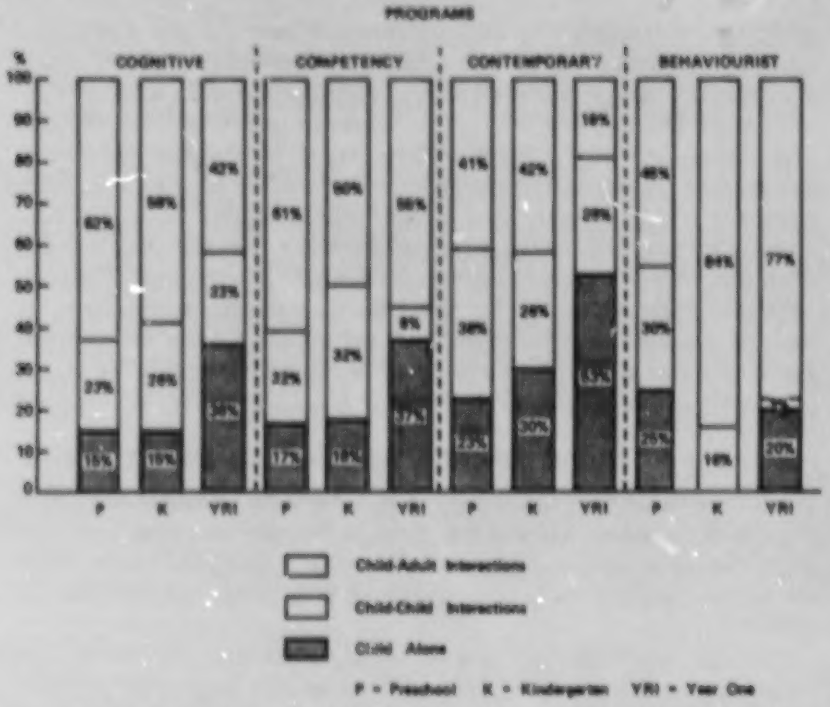


Figure 6.1 **Breakdown of Major Interactions in Four Centre-based Programs**

Within each data set, general and specific interactions and/or behaviours are compared with the intended practices previously presented. Had theorists, early childhood educators and writers agreed upon common classification procedures to describe programs, the selection of appropriate PROSE data would have been much easier. However as there is little agreement present in the literature concerning ways of classifying programs (Braithwaite, 1979), it was decided to present broad and specific data sets to embrace the differing viewpoints about ways of classifying early childhood programs.

PROSE General Behaviours and Interactions

General child/adult interactional patterns Figure 6.1 presents the general child/adult interactional patterns in the four centre-based programs over the three years. These patterns are derived from the proportions of observations recorded in *Words 1*, *2* and *3* of PROSE, to all other observations recorded on the *statement* side of PROSE. Chi-

Table 6.1 Chi-square Tests of Significance on Major Interactions recorded by PROSE

Programs	df	χ^2 value	Significance ($p < 0.05$)
Different programs across same year			
Preschool	6	14.8	Significant
Kindergarten	6	51.4	Significant
Year 1	6	81.2	Significant
Same program across years			
Cognitive	4	18.0	Significant
Competency	4	29.1	Significant
Contemporary	4	26.1	Significant
Behaviourist	4	58.3	Significant

square tests of significance shown in Table 6.1 indicate that there were significant differences in the distribution of these proportions among the four programs over the three years and within the same program across the same time period. Such significant differences in proportions among the programs were anticipated, but some explanation is necessary to account for the significant differences within the same program. The data in Table 6.1 reflect to some extent the yearly changes made to the PROSE instrument but, more importantly, the differences do reflect modifications made within the programs. Practices which were appropriate to achieve program objectives in the preschool classes were often inappropriate in the Kindergarten and Year 1 classes. The overall program objectives had not changed, only the learning experiences and classroom organizational practices differed to accommodate the broader curriculum experiences of the higher grades. It is interesting to note from Table 6.1 that the program which emphasized routines most strongly, the Cognitive Program, had the least significant chi-square value over the three years.

Inspection of Figure 6.1 for the preschool year shows that the two programs which were designed to have the highest proportion of child/adult interactions, the Cognitive and Competency Programs, did so. Conversely, the comparatively low percentage of child/adult interactions recorded in the Contemporary Program reflected the intended less direct involvement of adults with children. While the proportion of child/adult interactions in the Behaviourist Program reflected forty-five per cent of the interactions, the proportion of instructional activities in this time was high. The comparatively high proportion of child/child interactions in the Contemporary and Behaviourist Programs mirrored the opportunities provided within

Table 6.2 Percentage of Free and Instructional Activities in the Four Programs

Context Category 1	Preschool			Kindergarten			Year 1		
	Free	Instructional	(NS)	Free	Instructional	(NS)	Free	Instructional	(NS)
Cognitive	60	37	(3)	26	64	(10)	19	75	(6)
Competency	74	17	(9)	42	52	(6)	3	96	(1)
Contemporary	83	14	(3)	40	51	(9)	64	35	(1)
Behaviourist	57	34	(9)	9	70	(21)	—	100	(0)

(NS) = No score + routines

Table 6.3 Percentages of Teacher- and Child-structured Activities

Statement Word 10 Class structure	Preschool				Kindergarten				Year 1			
	Cog.	Comp.	Cont.	Behav.	Cog.	Comp.	Cont.	Behav.	Cog.	Comp.	Cont.	Behav.
Teacher-structured												
Closed	52	42	26	45	55	48	34	85	42	79	3	89
Moderate	—	—	—	—	26	8	27	7	31	17	18	11
Open	—	—	—	—	—	—	—	—	6	—	13	—
Child-structured	48	58	74	55	18	43	39	7	19	2	39	—
No observations	(0)	(0)	(0)	(0)	(1)	(1)	(0)	(1)	(2)	(2)	(2)	(0)

Cog. = Cognitive Comp. = Competency Cont. = Contemporary Behav. = Behaviourist these programs for children to interact with their peers. Similarly, both of these programs had the highest proportion of situations where the child was alone (twenty-three per cent and twenty-five per cent respectively).

The greater divergence in the ways the programs were implemented becomes more apparent when the Kindergarten data in Figure 6.1 are analysed. Here the proportion of child/adult interactions remained approximately the same for all the programs except the Behaviourist, where eighty-four per cent of the class time represented child/adult interactions. No observations were recorded where the child was alone. The proportion of child/adult and 'child alone' situations generally followed the pattern established in the preschool classes. However, the Kindergarten pattern did change somewhat in the Year 1 classes, where higher proportions of 'child alone' situations were recorded in three of the four programs. This accorded with the emphases in all programs for the Kindergarten children to work on activities alone rather than with their peers, as had occurred in previous years. The Behaviourist Program still had a high proportion (seventy-seven per cent) of child/adult interactions.

None of the general data presented above conflict with any of the intended practices of the four programs, nor do they reveal the presence of any unintended practices within the programs.

Free and instructional activities One way to determine the general practices in each program is to examine the proportion of free and instructional time established in each program. It would be expected that the two programs which placed greater stress upon school-related achievement, the Competency and Behaviourist Programs, would devote higher proportions of their time to instructional activities than would be the situation in the two other programs. Data taken from Category 1 from the *context* side of PROSE, highlighting the allocation of time to free and instructional activities, are presented in Table 6.2.

Examination of the data in Table 6.2 shows that the Behaviourist Program consistently had the highest proportion of instructional activities over the three years. Surprisingly, the Cognitive program had a higher proportion of instructional activities in the first two years than did the Competency Program, though this situation was reversed in the Year 1 class. However, examination of the data in Table 6.2 reveals that a higher proportion of instructional time in the Competency Program's Kindergarten class than in the Cognitive Program was concerned with skill-related areas of the curriculum. As would be anticipated, the Contemporary Program generally had the highest proportion of free activities among the four programs.

Another way of viewing the general organizational structures within the four programs and providing a different dimension to the analysis is to review the observations recorded for *Word 10* on the *statement* side (see Table 6.3). Here data were recorded on the structuring of the children's activities, indicating whether the activities were structured by teachers or children. Again, it would be expected that children's activities within the Contemporary Program would be child-structured more than they would be teacher-structured. Similarly, at the other end of a continuum, the Behaviourist Program should be expected to have more teacher- than child-structured activities. The data presented in Table 6.3 confirm these expectations quite dramatically. Further, they confirm the overall teacher structure allowing for pupil choice and determination, that was prescribed for the Cognitive Program.

The teachers' role dimensions The crucial role teachers play in determining how effectively programs are implemented has been highlighted by a number of writers (for example, Hall and Loucks, 1977). Research studies on the roles teachers play in establishing various classroom climates and the subsequent relationships between climate and student learning, though at times yielding apparently contradictory results, do highlight the centrality of the teachers' roles in creating and structuring classroom experiences (cf. Solomon and Kendall, 1979). While it is acknowledged that student background characteristics interact with classroom dimensions to affect learning outcomes, it is believed that, because the student and background characteristics appeared to be relatively homogeneous (see chapter 5), analyses of the relationships between process and student outcome data indicate that the teachers may contribute more to the variance associated with the process data than may be the case in other environments.

To describe the teachers' roles in the four programs, their overall roles are first analysed. In the classes in the Contemporary Program the teachers were to be supportive and suggestive and not to be overtly managerial. The Cognitive Program placed emphasis on routines and on having the teacher available as a resource person, who either directly or indirectly structured learning experiences. In this program the teachers were to focus on their roles as organizers/facilitators, within an inquiry-centred mode. The teachers' roles in the Behaviourist Program are a little more easy to summarize. They were to provide appropriate learning approaches, reinforce appropriate behaviours with specific verbal praise, and when necessary, used 'time out' procedures for extreme disciplinary situations. The Competency Program did not directly specify teachers' roles, but required the teachers to plan for individual attention at specific periods, with emphasis upon formal and informal language dialogues whenever possible.

Category 5 on the *context* side of PROSE recorded the teachers' or other adults' behaviours in the cycle, irrespective of whether the child under observation interacted with any adult. Of course during an observation cycle, the adults within a classroom may perform a variety of roles, and so multiple coding techniques were used for *Category 5* to produce an overall rating of teachers' and other adults' behaviours.

Table 6.4 reports the percentages of behaviours for the adults' roles overall in the four programs. In the preschool classrooms the adults in the Cognitive Program had a markedly higher percentage of tallies recorded for their 'discuss' and 'show/tell' and 'resource' roles than was the case in the other programs. Adults in the Competency Program spent more time 'managing' and 'listening and watching' than did teachers in the other programs. This mainly reflected the amount of time teachers in this program spent arranging children into their groups for the instructional times. A similar pattern may be discerned for adults in the Behaviourist Program.

The surprising finding from Table 6.4 is the comparatively small percentage of tallies indicating the individual time the adults spent with children, even given their child/adult ratio of 10:1. To some extent this result may be an artifact of the PROSE recording procedures, which focused on individual children rather than adults. In addition, this is not to deny that the adults may have accomplished their objectives during the short times the PROSE data showed they were individually associated with children.

At the Kindergarten level the teachers appeared to spend a considerable part of their time carrying out what were termed 'administrative' activities. These included preparing and arranging materials and/or learning activities for children, as well as teachers' more traditional administrative duties. The adults in the Behaviourist Program were more 'positive' in their behaviours and 'reinforced' and 'instructed' more than teachers in the other programs. This is in line with program expectations. In the Cognitive Program, thirty per cent of the observations referred to teachers' questioning roles which conformed to program expectations. Yet surprisingly, the same percentage of time was spent in this activity by teachers in the Behaviourist Program. It is difficult to tell whether the distribution of questioning behaviours within each of these programs was similarly distributed over whole-class, small-group or individual child/adult situations.

A similar pattern of behaviours and interactions to that noted above for the Kindergarten classes was reported for the adults in the Year 1 classes. The major divergence from the Kindergarten data for their adults' roles was in the Competency Program's percentage of tallies for 'questioning', which rose dramatically when compared with teachers in the other programs. Overall, there were no data in Table 6.4 to suggest that the programs were not implemented as intended.

Table 6.4 Percentages indicating Teachers' and Other Adults' Roles in the Four Centre-based Programs from *Word 6 Context* Side

Teachers'/ Adults' roles	Preschool				Kindergarten				Year 1			
	Cog.	Comp.	Cont.	Behav.	Cog.	Comp.	Cont.	Behav.	Cog.	Comp.	Cont.	Behav.
Show/tell	42	20	25	30	33	22	26	40	29	58	13	31
Listen/watch	6	34	12	9	43	34	34	47	25	37	19	36
Discuss	49	35	28	24	16	6	6	13	5	4	3	8
Lead	7	7	7	7	—	—	—	—	2	10	—	13
Peer	5	8	12	5	1	1	2	—	1	—	1	1
Resource	22	3	10	4	12	2	3	18	7	4	8	7
Housekeep	2	6	3	3	14	13	21	21	4	7	—	3
Manage	14	24	15	17	—	9	4	5	18	23	2	18
Individual attention	1	—	4	3	2	—	2	2	—	—	3	—
Positive[a]					12	19	23	32	12	25	6	15
Reinforce[a]					—	3	5	13	1	—	—	16
Instruct[a]					18	23	21	28	17	21	5	20
Admin[a]					31	34	24	45	1	1	—	—
Distract[a]					6	6	1	3	1	—	1	5
Negative[a]					5	3	4	3	—	—	—	—
Question[a]					30	18	24	30	18	46	8	17

[a] Coding used only with Kindergarten and Year 1 data.
Cog. = Cognitive
Comp. = Competency
Cont. = Contemporary
Behav. = Behaviourist

Environmental dimensions The general environmental dimensions may be determined by examining the data presented in Figure 6.2 based on the curricular activities from *Category 2* of the *context* side of PROSE. The amount of time devoted to teaching particular subjects can influence children's performances in specific curriculum areas. In the four programs, the amount of available time for teaching/learning was equivalent. However, the data indicating the children's curricular activities revealed differences among the programs. Because PROSE data for this category could have a multiple number of codings, the percentages featured in Figure 6.2 may have exaggerated the percentages of time devoted to the various curricular activities.

Examination of the data in Figure 6.2 generally confirms that the programs met their intentions. The two programs stressing the basic skills, the Competency and Behaviourist, had the highest percentages of codings in language and mathematics curricula areas. In each of the three years the highest percentage of tallies for Reading was recorded for the Behaviourist and Competency Programs. The Cognitive and Contemporary Programs consistently had the highest percentage of tallies for the Creative Arts over the three years. It is interesting to note the low percentages recorded for Social Science activities in all four programs.

By now the reader can develop some general appreciation of the fidelity of program implementation to program objectives. Yet it is not possible to discern the possible *degrees* of discrepancy between the ideals expressed in chapter 4 and the realities of program implementation presented in this chapter. Rather than develop an implementation score following Stallings and Kaskowitz's (1974) lead, it was thought more appropriate to present more specific data on various key aspects of the programs featured in the PROSE data. The use of an implementation score was not thought to be useful in this context, owing to the implementation of each program at a single site. Had multiple replications of the programs been possible, it may have been more useful to do this. However, it is believed that the following data should provide the reader with sufficient information to reach conclusions about the fidelity of the programs' implementation to their stated intentions.

PROSE Specific Behaviours and Interactions

PROSE data relating to children's specific behaviours and considered essential for the implementation of effective program interactions are presented in the following sections.

Characteristics of children's activities Data from *Word 8* on the *statement* side of PROSE attempt to characterize a child's activity in

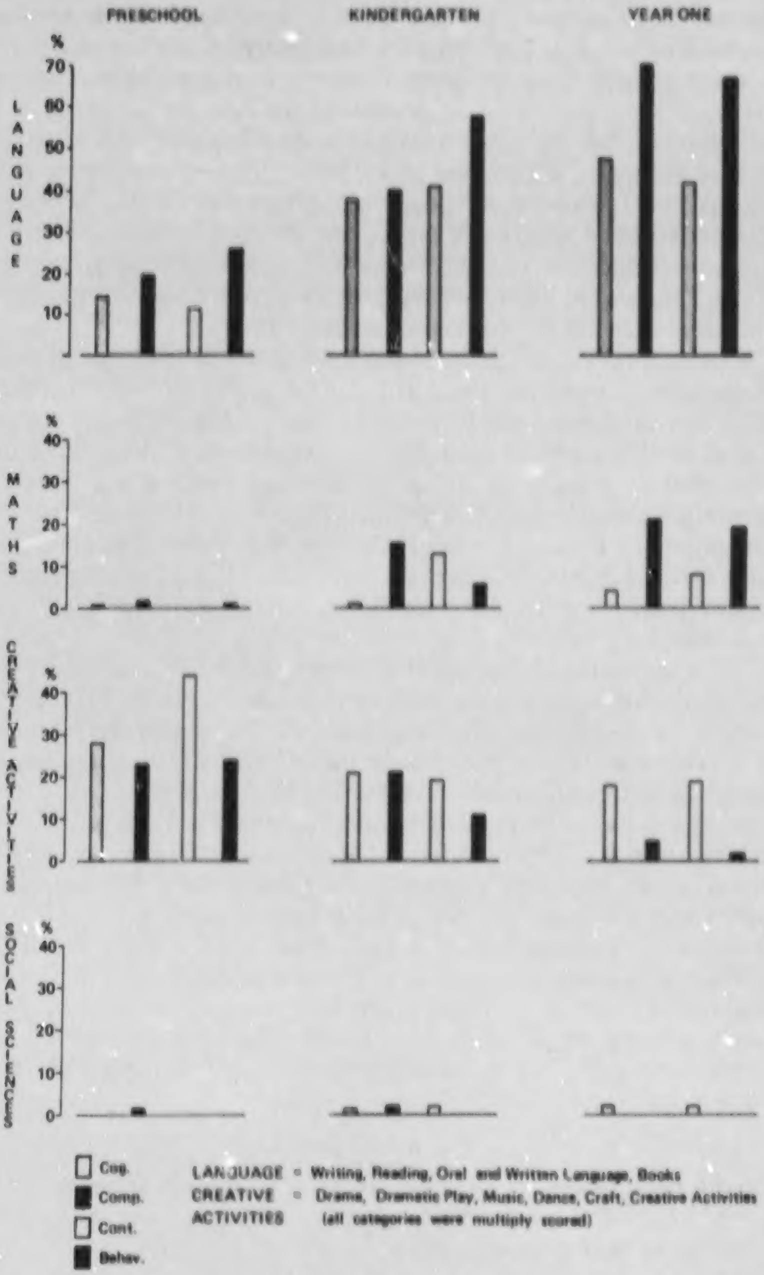


Figure 6.2 **Percentages of Major Curricular Activities Present in the Four Programs**

terms of the child's own goal or purpose. Because the Contemporary Program stressed that the children were to be the initiators of their own activities, a low percentage of their interactions was to be spent in activities determined for them by other people. The Cognitive Program encouraged children to carry out activities which PROSE recorded as 'divergent' rather than 'convergent'. Both the Behaviourist and Competency Programs emphasized the completion of teacher-directed tasks within structured settings of individuals, and small and large groups. This intention should have resulted in a higher proportion of 'convergent' (or teacher-directed) behaviours recorded for these two programs than for the other two.

The data for *Word 8* over the three years are illustrated in Figure 6.3. These data indicate that there was a higher percentage of 'fantasy' and 'divergent' activities in the Contemporary Program in preschool than in the three other preschool programs. However, there was approximately the same proportion of 'divergent' behaviours recorded in all four programs. As anticipated, the Behaviourist Program had the highest percentage of 'convergent' behaviours of any of the four preschool programs, and this pattern continued for the next two years. 'Fantasy' behaviours soon decreased in frequency in the Kindergarten and Year 1 classes in all programs, though the Contemporary Program still retained a high proportion of 'divergent' behaviours over the two subsequent years. As was expected, the highest proportion of 'convergent' behaviours over all three years was reported for the Behaviourist and Competency Programs which stressed the presentation of teacher-directed activities.

Appropriateness of children's activities While the data from *Word 8* presented evidence about the characteristics of the children's activities, it is necessary to determine the appropriateness of the children's behaviours in the different activities. This information enables a determination to be made about whether the children were on task, distracted, engaging in activities on their own, disrupting the class, or were just 'listening/watching' the ongoing classroom activities. It was anticipated that the percentage of responses recorded as 'idio' ('child alone') would be higher for the child-oriented Contemporary Program than for the other programs. Since the Behaviourist and Competency Programs are more teacher-directed, the percentages of behaviours recorded by the variable 'pat' (paying attention to task) would, accordingly, be higher for these two programs than for the other programs.

Figure 6.4 illustrates the data recorded for *Word 7* of the *statement* side of PROSE. The expectation that the Behaviourist and Competency Programs would have higher percentages of behaviours recorded as 'pat' (paying attention to task) is confirmed by the data in Figure 6.4.

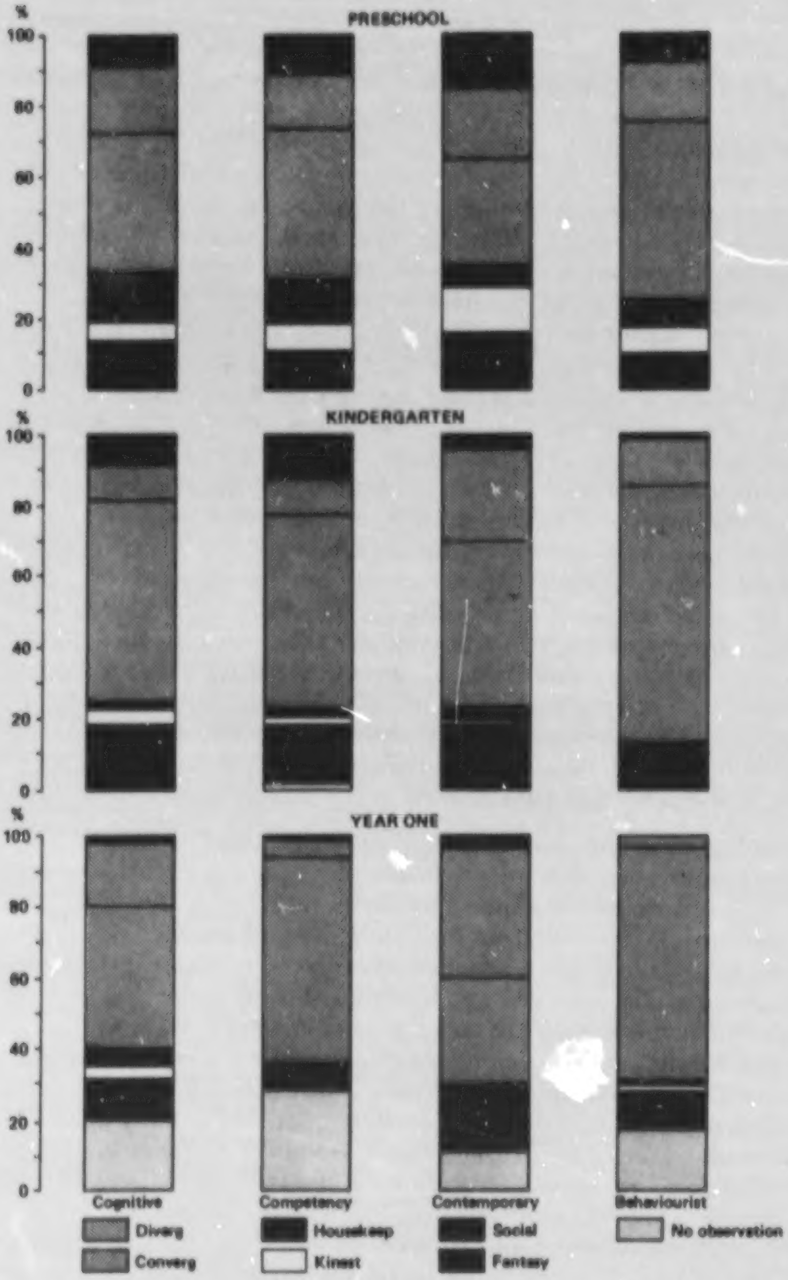


Figure 6.3 Recorded Interactions for *Word 8* of PROSE over Three Years

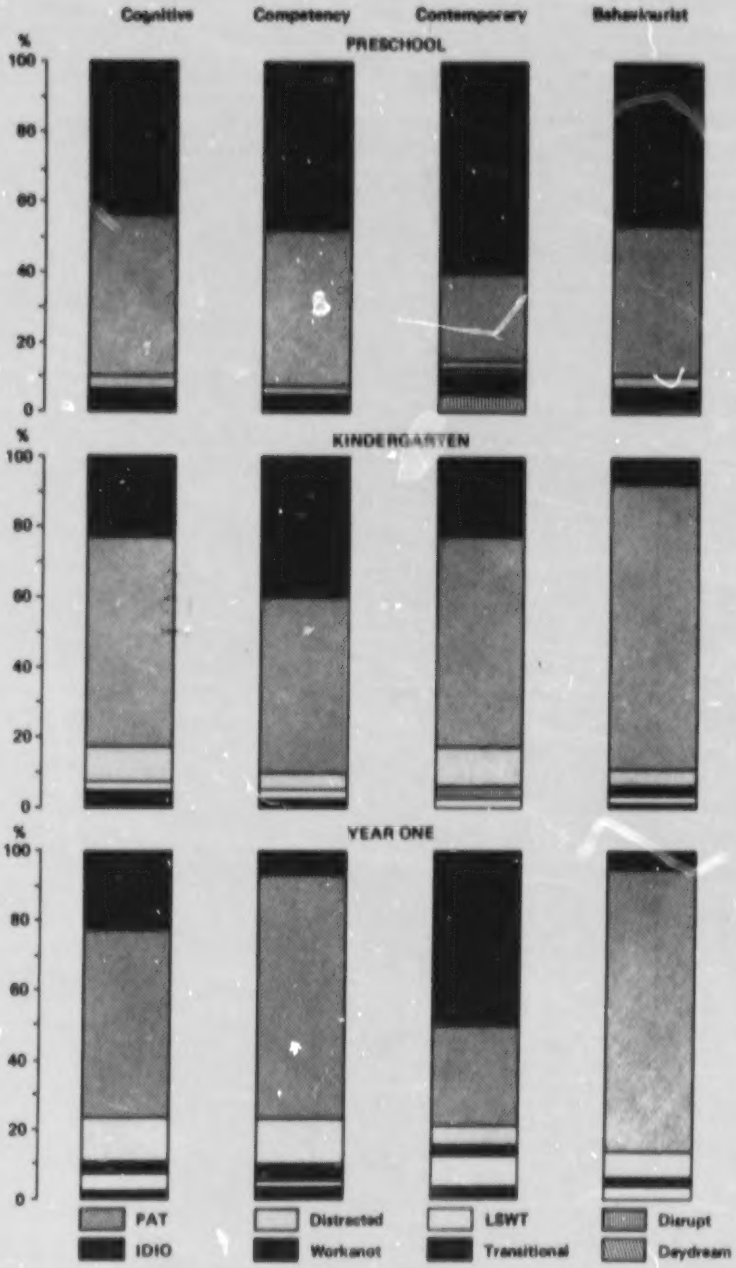


Figure 6.4 Recorded Interactions for *Word 7* of PROSE over Three Years

Table 6.5 Percentages of Children in Groups[a]

Size of groups		Preschool				Kindergarten				Year 1			
		Cog.	Comp.	Cont.	Behav.	Cog.	Comp.	Cont.	Behav.	Cog.	Comp.	Cont.	Behav.
1	Adult	1	2	6	4	1	1	2	4	1	1	2	—
	No adult	9	8	11	15	6	15	9	3	21	12	20	11
2	Adult	4	4	9	5	—	1	—	—	—	—	5	—
	No adult	12	7	19	13	4	16	17	5	12	5	28	1
3-5	Adult	39	23	14	13	2	6	5	—	5	—	7	—
	No adult	7	11	19	21	12	17	30	5	11	6	35	3
6+	Adult	24	29	12	12	42	6	9	19	18	6	—	6
	No adult	1	3	1	1	14	1	3	3	11	12	4	—
	All adult	3	14	10	14	18	36	23	64	21	58	—	81
	No adult	—	—	—	—	—	—	—	—	—	—	—	—

[a] May be multiply scored

Similarly there were higher percentages of behaviours recorded as 'idio' (idiosyncratic) in the Contemporary Program than in the other programs over the three years. Somewhat surprisingly, the Cognitive Program had a comparatively high percentage of behaviours recorded as 'pat' compared with the 'idio' behaviours recorded for that program. To some extent this result does reflect the teacher-structured routines in the program. One other comment must be made about the data in Figure 6.4. For children of this young age, there were comparatively few occasions when their behaviours were recorded as disruptive or distracted. This reflects very positively on the quality of the teacher/learning situations provided by the teachers in all programs.

Number of children in groups A comparison of the size of the groups used in the programs can indicate the extent to which the teachers used small-group or individual activities to achieve their objectives. For example, the Contemporary Program featured the use of individual activity cards in Year 1, the Cognitive Program used small-group activities extensively and the Competency and Behaviourist Programs made use of whole class activities. The data presented in Table 6.5 confirm these intentions and indicate that grouping practices introduced in the programs were in line with the stated intentions of the programs. The apparent trend was that children worked without adults in Year 1 classes, especially in the Contemporary Program.

Child/adult, child/child relational dimensions The introductory section of Table A-1 in Appendix A reveals that in over ninety-nine per cent of the observations, the target children interacted with adults, children and/or materials. The data recorded by *Words 1-5* on the *statement* side of PROSE amplify the child/adult, child/child relational dimensions. Table 6.6 and Figure 6.5 present the data for *statement Words 1-5.*

Given the program descriptions presented in chapter 4, it was expected that the recorded interactions of adults and children in the programs would differ. One of the main differences would be aspects of the teachers' roles recorded by *Word 3* of the *statement* side, associated with the adult's role(s) in the classroom. Specifically, it was anticipated that the adults in the Cognitive Program would question children more, and be more permissive in their structuring of children's activities. Adults in the Competency Program were expected to be more directive, while those in the Behaviourist Program were to use reinforcement more. On the other hand, the adults in the Contemporary Program were to be supportive of children and responsive to the children's initiations by helping them to carry out their self-initiated tasks.

The data for *Word 3* presented in Table 6.6 demonstrate some program implementation features. For example, in the preschool year,

Table 6.6 Recorded Interactions for *Words 1, 2* and *3* of PROSE *Statement* Side[c]

	Preschool				Kindergarten				Year 1			
	Cog.	Comp.	Cont.	Behav.	Cog.	Comp.	Cont.	Behav.	Cog.	Comp.	Cont.	Behav.
Word 1 (Role of child)												
Init	1	1	2	1	1	1	1	—	1	1	1	1
Star	8	7	6	9	3	5	4	4	4	2	6	4
Part	52	52	32	33	53	44	37	80	37	51	10	76
Listen/Watch	1	1	1	2	2	—	—	—	—	1	1	—
Resist	—	—	—	—	—	—	—	—	—	—	—	—
Word 2 (Type of adult)												
Teacher	30	41	25	24	50	42	38	79	37	55	11	76
Aide	24	19	10	13	1	—	—	—	2	—	—	1
Other	8	1	6	8	8	8	4	5	3	—	7	—
Word 3 (Adult activity)												
Positive	2	3	1	7	2	1	2	4	2	3	1	4
Reinforce[a]	—	—	—	—	—	1	1	3	—	—	—	2
Permissive[b]	5	4	2	1	—	—	—	—	—	—	—	—
Instruct[a]	—	—	—	—	4	7	3	6	3	3	1	11
Show/Tell	15	14	13	18	12	7	8	11	11	16	4	16
Listen/Watch	6	17	11	6	13	10	12	14	9	11	5	14
Discuss	13	10	3	7	2	1	1	3	1	1	1	2
Question	6	4	3	1	5	4	6	8	6	8	1	7
Peer	10	3	4	3	1	1	—	—	1	—	—	1
Lead[a]	—	—	—	—	6	1	1	8	1	3	—	6
Resource[a]	—	—	—	—	5	4	2	11	3	—	3	—
Do for child[b]	4	6	3	2	—	—	—	—	—	—	—	—
Housekeep[a]	—	—	—	—	—	2	—	2	1	1	—	3
Manage	1	—	1	—	6	8	4	12	4	8	1	9
Admin[a]	—	—	—	—	1	2	—	1	—	—	—	—
Distract[a]	—	—	—	—	2	1	1	1	—	1	1	2
Negative	—	—	—	—	—	—	1	—	—	—	—	—

a Coding used only with Kindergarten and Year 1 observations
b Coding used only with preschool observations
c Expressed as percentages—residuals from 100 per cent represent no observations

the Cognitive Program's teachers were more permissive and questioned the children more than did the teachers in the other programs. The teachers in the Cognitive and Competency Programs spent more time discussing with children than did the teachers in the two other preschool programs. As anticipated, the Behaviourist Program's teachers gave more positive attention to children, and subsequently reinforced more. Of interest to note from Table 6.6 is the fall off in the Kindergarten and Year 1 classes of the percentages recorded for 'discussing' and 'peering', no doubt reflecting the higher child/adult ratios which would have provided fewer opportunities in these years than in the preschool year. As would be expected the teachers in the latter two years instructed more than in the preschool year, especially in the Competency and Behaviourist Programs. A side issue worth mentioning is the high percentage of observations for 'managing' in all programs in the Kindergarten and Year 1 classes, compared with in the preschool classes, perhaps again reflecting the higher child/adult ratio in the latter two years.

In terms of *Words 4* and *5*, the program descriptions presented in chapter 4 suggested that the only differences among the programs on *Words 4* and *5* should be in terms of a greater proportion of child/child interactions recorded in the Contemporary Program.

The data from *Words 4* and *5* presented in Figure 6.5 reflect an overall pattern of children co-operating with one another. 'Aggressive', 'resisting', 'ignoring' or 'withdrawing' behaviours are quite minimal. The Contemporary Program had a higher proportion of behaviours recorded for *Words 4* and *5* in the preschool and Year 1 classes, as would be expected. No reasons can be advanced for the relatively higher percentage of child/child interactions recorded for the Competency Program in the Kindergarten year.

Overall the PROSE data presented above confirm that the programs were implemented as intended. As would be expected, there were a few occasions when the PROSE data indicated that the teachers diverged from the stated intentions of the programs. However these occasions were few in number and this finding is a tribute to the teachers' skills in program implementation.

It could be argued that the way in which the PROSE data were presented could mask differences between teachers within the same program. Undoubtedly, there *were* differences between teachers, due to a variety of daily occurrences, but they did not affect the overall implementation of the programs. Such differences as did occur were constantly monitored by the program assistants in their own program evaluation.

Two qualifications have to be made about the PROSE data. First, while the PROSE data present reliable and valid information about

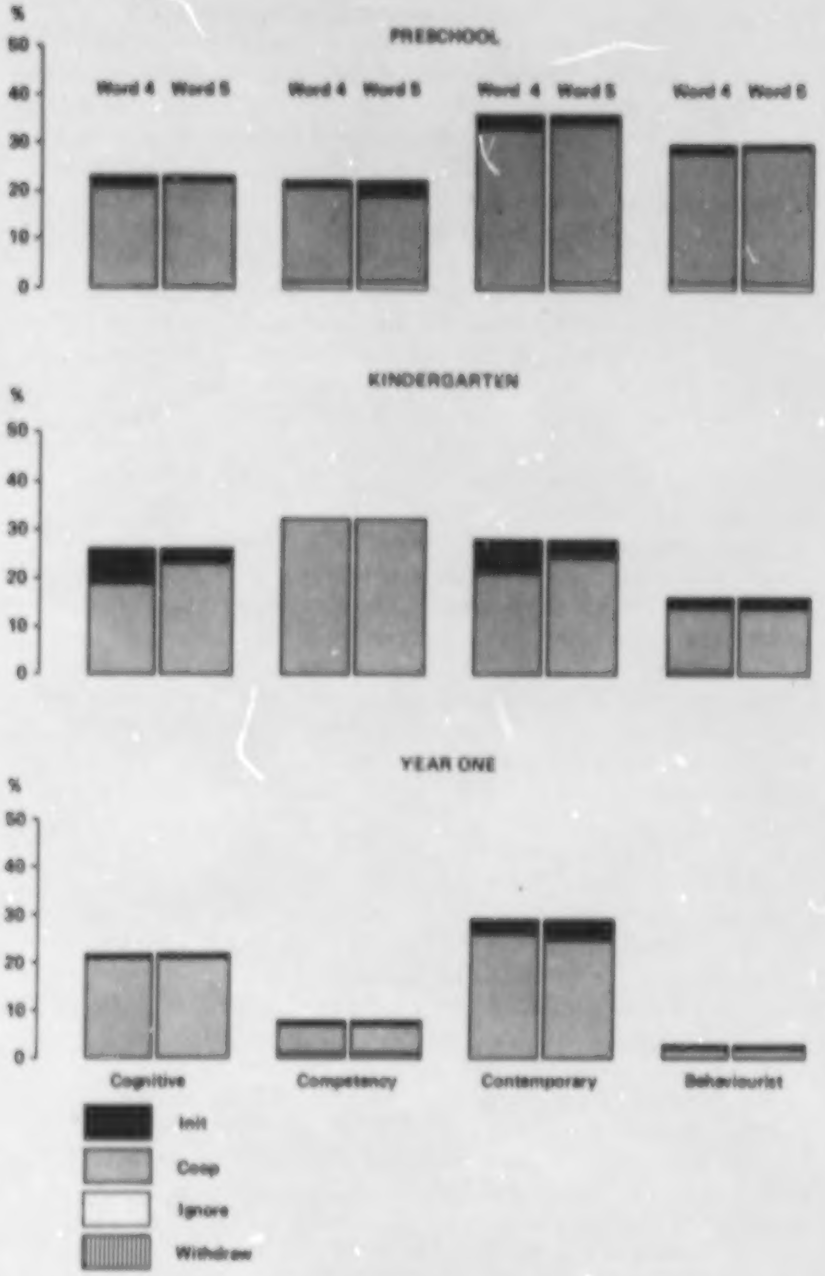


Figure 6.5 Recorded Interactions of *Words 4* and *5* of PROSE *Statement* Side over Three Years

classroom practices, the assumption that all children individually encountered identical experiences to those presented in the data should be discounted. On the contrary, the children experienced a wide range of individual experiences, the range of which may be hidden when individual data are aggregated. Second, to believe that the PROSE data presented throughout the preceding sections reveal program practices which were unchanging over the year is unrealistic. The teachers modified and improved their practices within the overall program dimensions.

PROSE Differences among the Programs?

The previous sections described many of the interactions recorded by PROSE in the classrooms. They suggest that the programs mirrored their intended practices, but also highlighted many of the differences among the programs. However, the presentation of those data did not discriminate among the programs in any systematic way. Consequently, it has been considered a useful exercise to analyse the PROSE data using the multivariate research procedure of discriminant analysis (Cooley and Lohnes, 1962; Rao, 1965). It is intended to separate the data into groups according to dimensions based on the relative contributions of the PROSE variables. Each of the discriminant functions produced by these analyses can be 'named' in a way analogous to the naming of the factor structures in factor analysis. It is these 'named' functions that are discussed below. By using the group means or centroids of the discriminant functions, it is possible to illustrate graphically the relative positioning of the different programs. (Details of procedures followed in these analyses are given in Appendix A.)

Preschool data Overall there was a low percentage of cases (sixty-nine per cent) correctly classified by the application of the discriminant analysis procedures to the preschool data. Hence, the PROSE preschool data present a confusing picture as there was overlap among the classification of the programs in terms of the discriminant functions produced by these analyses (see Appendix A). The first function is difficult to describe, as it apparently reflects some of the child/child, child/adult PROSE recording practices. Some of this confusion can be seen in the illustration of the group centroids in Figure 6.6. There the Cognitive and Behaviourist Programs' centroids are shown to cluster together at one end of the axis, with the two other program's centroids situated together at the other end. The second discriminant function can be said to illustrate the children working either co-operatively with one another ('co-op') or by themselves ('idio'), as the variables 'co-op' and 'idio' receive comparatively high weightings. Figure 6.6 shows that

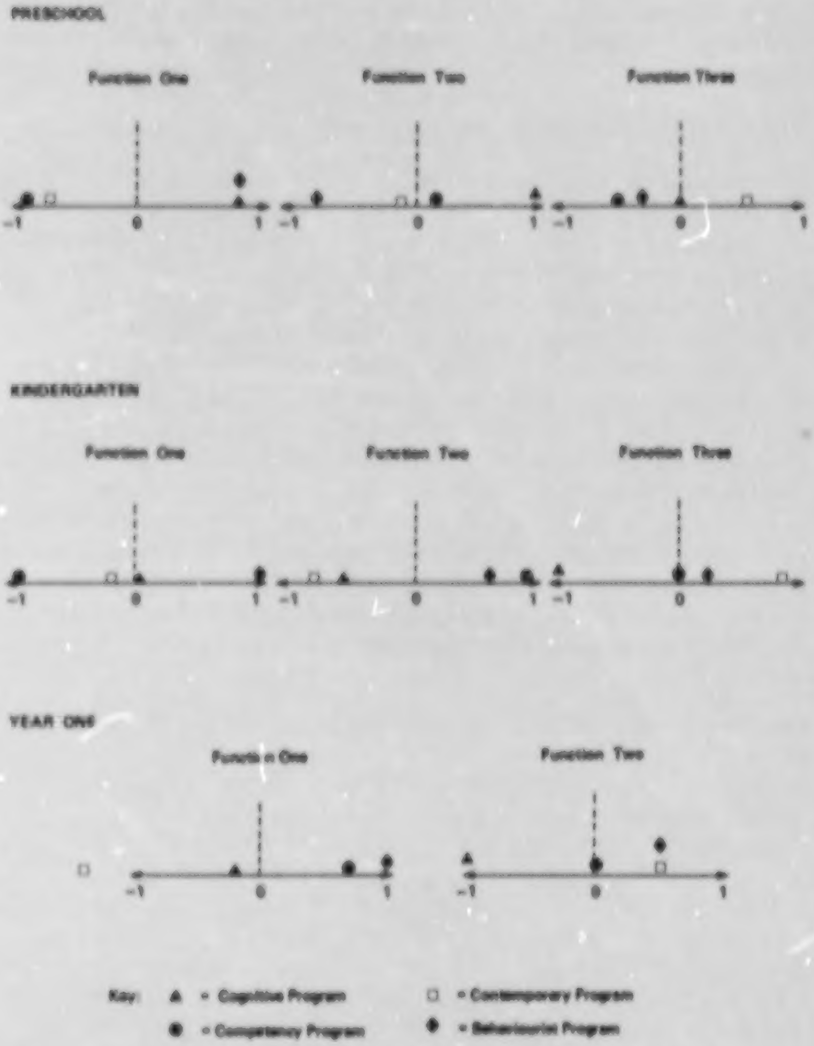


Figure 6.6 Group Centroids in Reduced Space for PROSE *Statement* Data Sets

the Cognitive Program's centroid on this function is at one extreme of the axis, with the Behaviourist Program's centroid at the opposite extreme, suggesting that different practices were recorded in these two programs. The third discriminant function is bipolar, representing both teacher- and child-structured events, but it only explains thirteen per cent of the total variance. The positions of the centroids for the four programs on this function are shown in Figure 6.6.

The discriminant function coefficients for the *context* side are shown in Appendix A, and the group centroids are illustrated in Figure 6.7. Overall there was a low discriminating power among these *context* variables as only forty-four per cent of the variance was associated with this data set. The first discriminant function concerns the grouping practices followed in the four preschools and, as can be seen in Figure 6.7, the Competency Program's practices were different from those of the three other programs, which clustered together. The teachers and aides in the Competency Program made more use of large-group sessions than did the adults in the three other programs.

The discriminant analyses for the preschool data were not easily described as there was overlap among some of the groups. The classification routine was able to identify correctly comparatively low percentages of the cases as members of the groups to which they actually belonged.

Kindergarten data The classification of the four programs according to the three discriminant functions obtained from the *statement* data became a little clearer when the Kindergarten data were analysed. The comparative fluidity in grouping practices (children's choice of activities and so on) changed somewhat once the children entered the Kindergarten classes. Eighty-six per cent of the cases were correctly classified for these data (see Appendix A). The first discriminant function for the *statement* data refers to the teachers' interactions with children, while the latter pay attention to their set tasks. This function clearly illustrates the differences among the programs, where the Behaviourist Program is clearly distinguished from the three other programs, with its centroid located at the positive end of the axis (see Figure 6.6). The second function which accounts for thirty-two per cent of the explained variance is bipolar, referring to teacher- and child-structured learning situations. The Behaviourist and Competency Programs at the positive end of the axis, are differentiated from the Cognitive and Contemporary Programs whose centroids are at the opposite end of the axis. This grouping accords with the intended practices of all programs. The third function, accounting for twenty-three per cent of the explained variance, concerns the child/child interactions when children were working together. There were far more child-

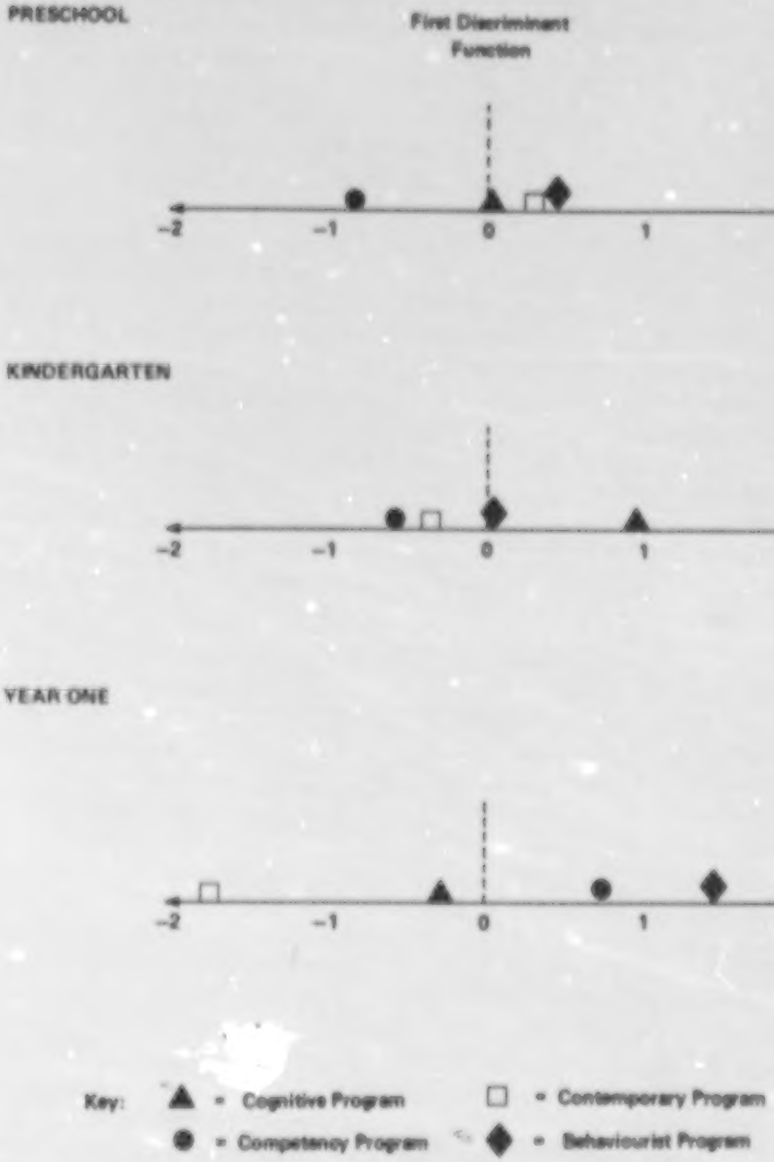


Figure 6.7 **Group Centroids in Reduced Space for PROSE *Context* Data Sets**

initiated activities in the Contemporary Program than in the other programs, and this difference is illustrated by the displacement of the centroids along the axis in Figure 6.6. Here the Contemporary Program's centroid is at the positive end of the axis, the Behaviourist and Competency Programs' centroids are in the middle, and the Cognitive Program's centroid is at the negative end of the axis.

The discriminant functions resulting from the analysis of the *context* data did not account for a high percentage of the explained variance (forty-seven per cent, see Appendix A) and correctly classified only fifty-one per cent of the cases. The first function refers to the grouping practices within the Kindergarten classes. As Figure 6.7 illustrates, the practices within the Cognitive program were different from those in the three other programs. To some extent this result highlights the Cognitive Program's use of both small- and whole-group activities throughout the recording period. Interpretation of the second and third functions does not reveal any meaningful information beyond suggesting that the second function could refer to curricular practices and the third to the relative positioning of children with respect to groups.

Year 1 data The consolidation of teacher-directed practices continued into Year 1. The data in Appendix A indicate that the three discriminant functions based on the *statement* data correctly identified eighty-five per cent of the cases and accounted for ninety-five per cent of the variance (see Appendix A). However, whereas the second and third functions of the preschool and Kindergarten *statement* data accounted for substantial percentages of the explained variance, first function for Year 1 data accounted for ninety-four per cent of the explained variance.

The variables with the highest coefficients on the first function relate to the child being part of a teacher-structured group. The Behaviourist Program maintained its relative position vis-a-vis the other programs on this function, and its centroid is located at the positive end of the axis, whereas the Contemporary Program's centroid is located at the extreme negative end of the axis. The variables loading highest on the second discriminant function refer to two moderately structured teacher situations. In one, the children are associated with the teacher or another adult and, in the other, the children are working cooperatively on child-initiated tasks. Both of these situations reflected the practices in the Behaviourist and Contemporary Programs, with the former having close teacher structure and the latter providing many opportunities for children to work together on child-initiated and directed activities.

For the Year 1 *context* data, the percentage of correctly classified cases (sixty-six per cent) is the highest of the three *context* data sets (see

Appendix A). The first function again relates to the grouping practices in the classroom, but also includes some of the adult's predominant activities ('show') and the intentions of the teachers in terms of establishing free or instructional times. The four centroids have their widest displacement on this function for any of the three data sets. The Contemporary Program's centroid is clearly differentiated from the Behaviourist Programs' centroid, which is located at the extreme positive end of the axis (see Figure 6.6). It is interesting to note how the centroids of the four programs for the first function, relating essentially to grouping practices, become more widely displaced as the *context* data sets for the three years are analysed. To some extent this result probably represents the further consolidation of grouping practices within the Year 1 classes as opposed to the more fluid structures present in the preschool classes.

Overall the discriminant analyses presented above do confirm that there were differences among the programs, and that these differences generally mirrored the stated intentions of the four programs.

It would have been desirable had the discriminant functions been similar over the three years, for this would have made the task of confirming the match of actual and intended classroom practices easier. However, as explained previously the relative fluidity of classroom interactions in the preschool classrooms become more rigid and teacher-dominated in the higher years.

Analyses of the Teachers' Language Instrument (TLI) Data

The following TLI data supplement the PROSE data in answering the questions posed at the beginning of this chapter. They report analyses of the verbal behaviours of teachers in the four programs and focus on the central roles played by teachers in program implementation.

As mentioned in chapter 5, the TLI data were recorded in the preschool and Year 1 classes. These data present one way of analysing the teachers' verbal classroom behaviours, which markedly affect the implementation of educational programs. The method of scoring the TLI was also outlined in chapter 5. However, caution should be used in interpreting the TLI results. The relatively small number of teachers involved in the Project (see Table 2.1) and the confounding of teacher behaviours with programmatic intentions make it necessary to interpret the following data cautiously. Beyond an analysis of whether or not the teachers' verbal behaviours conformed to program intentions, no further data analyses are reported.

Both sets of data were analysed using the SPSS Program Condescriptive (Nie et al., 1975) so that a percentage breakdown of the different teacher verbal behaviours and functions could be examined for each program. Chapter 5 detailed the meaning of the dimensions in the *mode* and *function* categories. The percentages of all categories and sub-categories are set out in Appendix B.

Preschool TLI results Figure 6.8 presents the percentage distribution of the *mode* and *function* categories of the TLI responses in the four preschool programs. Specifically, the data suggest the following points.

1 The Cognitive Program data revealed a strong questioning strategy in the language of its teachers. Open questions, which encourage divergent responses from children, were a particular feature. These teachers also showed a strong tendency to evaluate the children through verbal interaction.
2 Teachers in the Competency Program developed a pattern of language mode and function similar to that shown by the Cognitive Program's teachers. They questioned more than stated, and more data were recorded in the 'evaluative' dimension of the heuristic function for these teachers than for teachers in the Cognitive Program (see Appendix B).
3 The language behaviour of the Contemporary Program's teachers presented a different pattern in the use of functions from teachers in the other programs. They instructed very little, but regulated children's behaviour through motivation and control. Teachers in the Contemporary Program also used language to serve a social function, particularly that of promoting social interaction.
4 The Behaviourist Program's teachers used reinforcement more than teachers in other programs. Interestingly, they used motivation more than reinforcement as a technique for shaping the behaviour of the children. The regulatory function accounted for almost fifty per cent of their total utterances.

Overall these data suggest that the teachers' verbal behaviours reflected the stated intentions of the preschool programs. However, more interesting program differences are revealed by comparing the frequency of behaviours in the sub-categories of the instrument (see Appendix B).

The most interesting category in the *mode* section of the instrument was the questioning category, because this category divided the programs and revealed significant teaching style differences. Teachers in the Cognitive Program asked many more open questions (twenty-three per cent) than simple questions (eight per cent). Moreover, they asked more open questions than teachers in the other programs. While teachers in the Competency Program asked as many questions as teachers in the Cognitive Program, their responses were more evenly divided between open questions (eighteen per cent) and

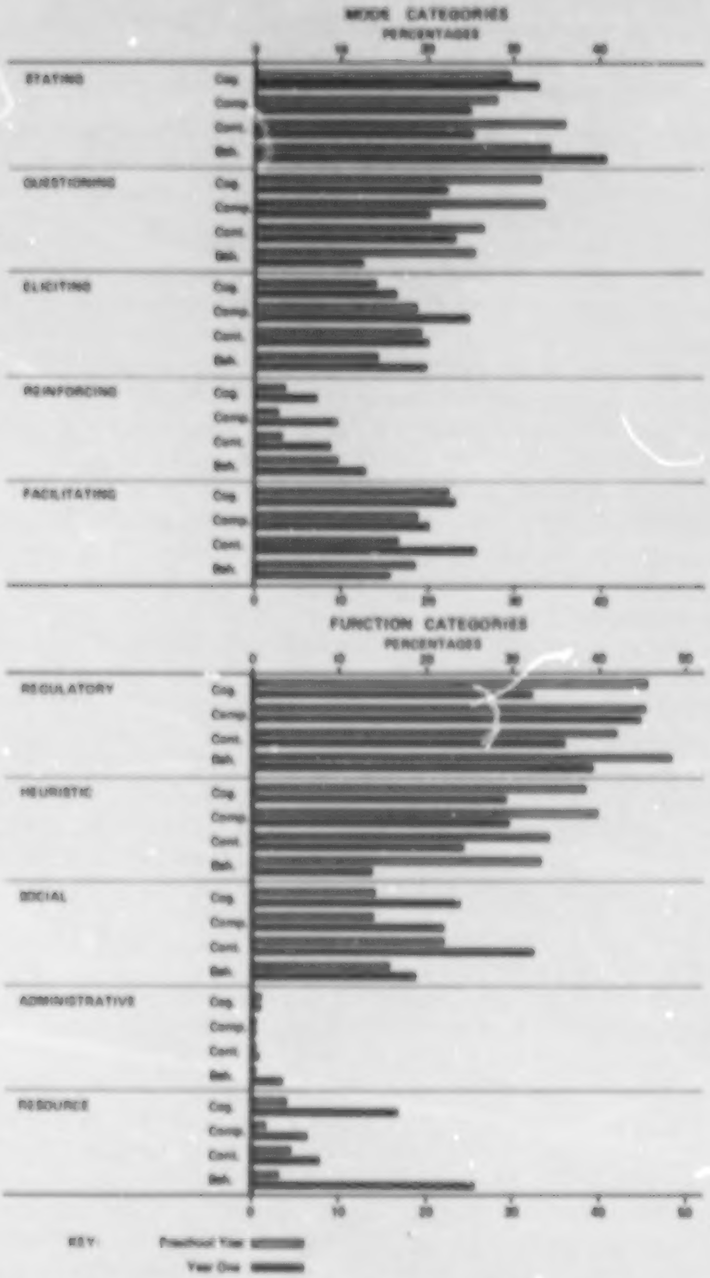


Figure 6.8 Percentage Distribution of TLI *Mode* and *Function* Categories in Four Programs

simple questions (thirteen per cent). Teachers in the Contemporary Program divided their questioning behaviour evenly between simple (fourteen per cent) and open (twelve per cent) questions. Socratic questioning was infrequent in all programs, but was slightly higher in the Cognitive than in the other programs.

Teachers in the Behaviourist program provided more instances of both general and specific praise recorded in the reinforcing mode than teachers in all the other programs.

The *function* section of TLI showed that the teachers' speech in the Contemporary Program differed from the other programs along two dimensions in the regulatory category. Not only were teachers in the Contemporary Program slightly less regulatory than teachers in the other three programs, but they used different means to regulate the behaviour of children. They tended to 'control' (eighteen per cent) and 'motivate' (fifteen per cent) more and they 'instructed' less (eight per cent) than teachers in the other programs. The low incidence of instruction is consistent with Contemporary Program's goals which specified that teachers should allow children to initiate a large percentage of their own activities. Overall teachers in the Contemporary Program used language as a control function more than teachers in other programs.

Teachers in the Behaviourist and Cognitive Programs used language to regulate children's behaviour. 'Motivation' was their main regulatory language behaviour followed by 'instruction' and then 'control'. In the case of the Behaviourist Program's teachers, the 'motivate' dimension accounted for fifty per cent of all regulatory behaviours recorded by the *Teachers' Language Instrument*.

Teachers in the Contemporary Program differed from other teachers in the frequency of language used within the social category of the TLI. In this program, fourteen per cent of teacher verbal episodes were coded as 'social interaction' behaviours, compared with their frequencies in the Competency (six per cent), Cognitive (six per cent) and Behaviourist (ten per cent) Programs. The Contemporary Program had specific and important goals in the area of the children's social development, which is reflected in the language behaviours of the teachers.

The pattern for the heuristic category was similar across all programs, in that all teachers used 'evaluation' for heuristic purposes much more often than the input of 'information' or 'knowledge' language behaviours. Teachers in the Cognitive (thirty-two per cent) and Competency (thirty-two per cent) Programs were recorded as using 'evaluative' language behaviours more often than teachers in the Behaviourist (twenty-five per cent) and Contemporary programs (twenty-six per cent). These data complement the response patterns for the questioning category and, in the case of the Cognitive Program, this is a significant program variable. It is interesting information about the development and implementation of the Competency Program, which did not specify any particular interaction styles for the teachers.

Year 1 TLI results From an examination of the data in Figure 6.8 the following points can be made about the Year 1 results.

1 In the Cognitive Program, the teacher exerted the regulatory *function* through instructional language behaviours. This reflects the emphasis that the program placed on small group planning and summarizing sessions. The use of heuristic language behaviours was also a feature, with thirty per cent of utterances serving a heuristic purpose.
2 The Competency Program's data revealed that the teacher developed a complex teaching style based on 'Socratic' questions and 'show' language behaviours, derived from the area of carefully selected materials teaching cognitive competencies. As in the Cognitive Program, there was a strong emphasis on heuristic language behaviours.
3 The language behaviours of the Contemporary Program's teacher presented a unique pattern in the *function* categories. A high percentage of utterances recorded for the social function was evident in the data from this program. In addition the Contemporary Program's teacher was recorded as responding more to children's requests for resource assistance than did teachers in the other programs, and this language behaviour was appropriate to the implementation of this child-centred program.
4 The Behaviourist Program's teachers showed a different pattern for both *mode* and *function* categories from teachers in the other programs. Particularly striking was the low incidence of questioning language behaviours, coupled with a high incidence of utterances coded in the resource category. This reflected the organization of the Behaviourist Program, where a considerable part of the child's day was involved with set activities, many of which were self-correcting. Most of the time the Behaviourist Program's teachers used 'lead' language behaviours, and questioning was not a prominent language behaviour.

A more detailed examination of the percentages listed in Appendix B and Figure 6.8 indicates that in terms of the *mode* category of utterances, teachers in the Cognitive, Competency and Contemporary Programs showed a similar pattern, while the Behaviourist teachers differed from them in the frequency of 'questioning and reinforcing' language behaviours. The Behaviourist Program's teachers questioned less and reinforced more. For all programs, 'stating' was the most commonly occurring language behaviour but was more heavily used by the Behaviourist Program's teachers than by teachers in the other programs.

An examination of the rankings and respective percentages recorded in the eliciting and facilitating categories points to interesting trends. In the Behaviourist and Competency Programs, the eliciting category was recorded more frequently than the facilitating one, while in the Cognitive and Contemporary Programs the reverse result occurred. This reflected a difference in teacher language due to program structure, for the Behaviourist and Competency Programs were teacher-centred and the other two were child-centred. One would expect teachers in a child-centred program to exert their direct authority less often and prefer to act as facilitators in the classroom.

Another result related to program objectives is the ranks and percentages recorded in the 'reinforcing' strategy. As expected, the Behaviourist Program's teachers used reinforcement more than teachers in the other programs since it was an integral component of the implementation of the Behaviourist Program. The differences were not as large as expected and it appears that the Behaviourist teachers relied more on the intrinsically reinforcing nature of the materials offered, many of which were self-correcting, than on extrinsic verbal praise to shape behaviours. This explanation would again be supported by a very high incidence of utterances directed to the resource category.

The results of the broad *function* categories show consistent trends, with two major and important differences. Teachers used language as a regulatory behaviour more than for any other function. Again the Behaviourist Program's teachers diverged markedly from patterns shown by teachers in other programs, and especially in the percentage of utterances coded in the resource and heuristic categories. The resource category was used much more and the heuristic category much less by Behaviourist Program's teachers. There was also a high incidence of information given in the stating category and the use of questions for heuristic purposes was low in the Behaviourist Program.

Another difference among the purposes of teacher language used in these classrooms is shown by the frequencies recorded for the social *function*. The teacher in the Contemporary Program used language coded as 'social interaction' more frequently than teachers in the other three programs. The Contemporary Program's objectives emphasized the development of social skills and personal interaction skills in the children, and the large amount of time the teacher spent with the children in verbal interaction for a social *function* showed a preoccupation with attaining program objectives in this area.

The frequency of behaviours in the *mode* categories of the instrument provide a more detailed picture of how programs were implemented (see Appendix B). For example, the stating *mode* was the most frequently occurring *mode* across all programs, but the frequency of 'show', 'tell' and 'lead' behaviours recorded within the stating *mode* revealed different patterns among the programs. In the stating *mode* the Behaviourist Program's teachers, for example, were recorded as using 'lead' as a major strategy for half of their utterances coded in this category. This result was consistent with the principles of the Behaviourist Program, for it emphasized large-group activities, complemented by carefully graded individual work.

The teachers in the Competency Program showed quite a different pattern, with a very low incidence of 'lead' behaviours, but a higher incidence of 'show' language behaviours. The Contemporary and Cognitive Programs showed different patterns again. The low incidence of 'lead' language behaviours within the Contemporary Program was appropriate since it was a child-centred program, where children determined many of their learning experiences. Teacher contact with children in the Contemporary Program produced both 'show' and 'tell' statements in even proportions. The Cognitive Program's teachers used more 'lead' language behaviours because this Program emphasized some teacher-led group activities.

Patterns of questioning were another feature which differentiated programs. In the Competency Program, 'Socratic' questions occurred more frequently than either 'simple' or 'open' questions, in contrast to the other programs where 'simple' questions were recorded more frequently. No teaching style was prescribed for the Competency Program, although the curriculum was teacher-centred and focused on the teaching of cognitive and social competencies. The teacher in the Competency Program developed this structured questioning style for instructing the children in these competencies.

The eliciting *mode*, where teachers required children to respond, accounted for between ten per cent and twenty-five per cent of teacher utterances. Across all programs 'commands' were more frequently used than 'requests'. The data recorded in the facilitating *mode* seemed to perform a complementary function to those in the eliciting *mode*, and accounted for the same proportion of teacher talk (sixteen to twenty-five per cent). In terms of objectives, as one would expect, the teachers' language behaviours in the Contemporary Program were recorded in the facilitating *mode* more often than that of teachers in other programs because the Contemporary Program emphasized children's freedom of choice within a flexible, democratic framework. The Contemporary teacher also 'responded' more than teachers in other programs. The Cognitive Program also stressed that children should learn to control their own learning experiences through practice in planning. Consequently, the teachers in that program had more behaviours recorded in the facilitating *mode* than in the eliciting *mode*. However, in the Competency and Behaviourist Programs, which were teacher-centred, the eliciting *mode* occurred more frequently than the facilitating one.

The *functional* categories of the instrument showed that teachers spent a great deal of time regulating the behaviour of children (thirty-one to forty-three per cent). The *Teachers' Language Instrument* dimensions revealed the strategies used to achieve this management. There was a clear difference between the patterns of management of the Cognitive teachers on the one hand, and of the Behaviourist, Competency and Contemporary teachers on the other. The Cognitive teachers used 'instruction' (fifteen per cent) as a strategy in preference to 'motivation' (nine per cent). 'Control' language behaviours were used the least as regulatory behaviours. Teachers in the other programs, however, mostly used a 'control' strategy followed by 'instruct', with 'motivate' (eight per cent) being the least used dimension concerned with the regulation of children's behaviour.

The pattern recorded for the heuristic *function* was similar across all programs in that all teachers used the input of information or knowledge for heuristic purposes more often than for evaluative purposes. The Cognitive and Competency teachers, who used the heuristic *function* more often than the other teachers, showed an even division in their utterances used for evaluation and knowledge purposes (see Appendix B).

In the social *function*, language was used for the purposes of promoting social interaction more frequently than for the 'personal' *function*, which involved the projection of the teacher's personality. The behaviour denoted by 'imagine', when the teacher participated in dramatic play on equal terms with the children, was not used by the Year 1 teachers, probably because concern with basic instruction took precedence.

Generally the TLI data presented above confirm that the teachers' verbal behaviours followed intended practices, again attesting to the successful implementation of the programs.

Other Checks on Centre-based Program Implementation

As well as the use of data collected by PROSE and the *Teachers' Language Instrument*, other checks were instituted within each program to ensure fidelity of program implementation. The first involved the use of formative program documents which provided continuous feedback to the teachers concerning their classroom behaviours. The regular use of checklists provided teachers with immediate feedback which was used to modify their behaviour whenever necessary.

Second, visitors to the program were often asked to complete checklists on each program and to write descriptive comments about the programs they observed. The independent responses to these checklists were used by the program assistants and teachers as a further verification of their implementation of the programs. One visitor commented about the Behaviourist Program:

> The observer has obviously seen the program at a time of year when both the teachers and children are working skilfully and securely in the routines established. Perhaps the most startling difference observed in this program is the teacher control of the children in group sessions.
>
> Individual teaching situations appear to be of a thoughtful, warm and high standard. Most impressive! At worktime the children were free to choose activities which were selected beforehand by the staff. Some of these were of an expressive nature.
>
> The observed program is certainly consistent with the stated principles. Yet there are other features of the program which are not stated in the objectives but are, in the opinion of the observer, apparent. There is the warmth of the inter-personal relationships between adults and children, and the child/child. Also, during the worktime, the children are freely making decisions and acting independently. It appears a pity that these factors are not more widely acknowledged as being integral to the program.

By such means additional checks were made on program implementation.

Analyses of the Home-based Program's Process Data

The *Teacher Observation of Parents and Children* (TOPC) was developed as an instrument to record the main interactions in the Home-based Program. This instrument required teachers to record separately teacher's, mother's and children's predominant behaviours. TOPC data were collected once a month during the school year. These data represented teachers' assessments of the interactions that occurred during specific visits and the context of the lessons. All the data were analysed and recorded using the SPSS Program Condescriptive (Nie et al., 1975). The contingency tables were examined to determine high frequency behaviours, the occurrence of frequent behaviours and associated behaviour patterns over the year. Such analyses enabled a check to be made on the types of interactions occurring and to determine whether or not the teachers recorded any changes in the range of possible interactions over the year.

Table 6.7 designates the rankings of the high-frequency behaviours recorded by the teachers over the whole year. Examination of this table confirms that the types of behaviour recorded after the visits were those the Home-based Program was encouraging children, mothers and teachers to develop. However, some caution should be placed on the interpretation of these data as at times the teachers could have recorded

Table 6.7 Ranking of High-frequency Behaviours recorded by TOPC in Home-based Program[a] (N = 82)

Teacher's behaviour		Mother's behaviour		Child's behaviour	
To mother	To child	To teacher	To child	To teacher	To mother
listens	questions	open to suggestions for child	listens or watches	co-operates-convergent	happy
encourages	encourages	enjoys teachers' company	encourages	happy	co-operates convergent
explains	listens	open to suggestions for self	converses	answers	initiates contact
questions	suggests an activity	identifies problems	questions	initiates contact	answers
suggests an activity	provides materials	anxious about child	shows or tells	listens or watches	stars
shows or tells	shows or tells	questions	praises	informs	listens or watches
			controls	stars	makes personal statements
			verbal mandate	makes personal statements	questions
				questions	

[a] Two high-frequency behaviours not included above were 'use of materials' (non-interactive) and 'verbal contact' (non-specific)

idealized interactions. The only means of establishing the reliability and validity of these data would have been to use observers, a procedure which would have detracted from the teaching situation during the home visits. (This observation is based on the earlier experience of developing instruments for use in the evaluation. It was found that the presence of external observers in the homes detracted from the intended teaching situations, especially when a number of different observers visited homes, a circumstance often necessitated by the data collection procedures of the Project.)

A more indirect means of testing the reliability and validity of the data comes through an analysis of TOPC data over the year. These data (Tables 6.8 and 6.9) do indicate changes in rankings over the year and suggest that teachers did record different interactional patterns between themselves, children and their mothers over this period. In general, a greater range of high-frequency child behaviours was recorded during the third term, suggesting that some extension of teachers' and mothers' behaviour repertoires occurred. One point worth noting from Table 6.9 is that neither teachers nor mothers encouraged divergent activities very often. Moreover the data in Tables 6.8 and 6.9 indicate that variations in teacher-mother interactions occurred over the year. The teachers appeared to be more willing to follow parental cues in third term, even to the extent of altering lesson objectives quite frequently. Listening on the part of teachers not only indicates their receptivity to mothers' needs but is rewarding for both adults if the mother's enjoyment of the teacher's company is the result.

Table 6.8 Ranking of High-frequency Teacher Perceptions of Changes in Congruent Behaviours and Associations over Three Terms—Children's Behaviours

Adult behaviours	Associated child behaviours (N = 82)		
	Term 1	Term 2	Term 3
Teacher suggests activity	listens/watches happy	personal statement answers convergent	listens/watches personal statement answers convergent
Teacher explains	listens/watches answers	answers	listens/watches personal statements answers convergent
Teacher encourages	—	listens/watches personal statements answers happy	listens/watches personal statements informs answers co-operates happy
Mother shows/tells	stars co-operates convergent mandates withdraws	stars listens/watches personal statement answers co-operates convergent happy	listens/watches personal statement co-operates happy informs
Mother questions	stars answers convergent	initiates stars listens/watches answers co-operates	listens/watches personal statement answers convergent happy
Mother extends	informs answers	co-operates happy	personal statement answers co-operates convergent
Mother mandates	listens/watches withdraws verbal aggression	—	withdraws
Mother praises	co-operates	stars mandates answers co-operates convergent no response	stars mandates answers co-operates convergent verbal aggression

Table 6.9 Rankings of High-frequency Teacher Perceptions of Changes in Congruent Behaviours and Associations over Three Terms—Mothers' Behaviours

Teacher behaviours	Associated mothers' behaviours		
	Term 1	Term 2	Term 3
Suggests activity	open to suggestions for self open to suggestions for child anxious about self	open to suggestions for self open to suggestions for child	—
Suggests other	open to suggestions for self open to suggestions for child anxious about child	open to suggestions for child anxious about self pleased at gains	open to suggestions for self pleased at gains
Provides materials	enjoys company	enjoys company pleased at gains	enjoys company pleased at gains open to suggestions for self
Passive	—	pleased at gains	open to suggestions for self open to suggestions for child pleased at gains
Questions	open to suggestions for self anxious about child enjoys company	open to suggestions for child	open to suggestions for self

It was also necessary to determine which of the highly frequent child and other behaviours were positive. Obviously knowledge of these more successful or positive behaviours enabled teachers to plan their lessons more effectively. Table 6.10 lists the behaviours which the four teachers in the program rated as being successful for them to introduce in their lessons and the mothers' behaviours which converged with desirable child behaviours. Though the number of teacher listings is comparatively small, there is value in examining them as they highlight the interactive role of the teacher within the Home-based Program. It is interesting to note the extent of congruence between those high-frequency behaviours of their own which teachers recorded as being successful with children, and those which they rated mothers as using successfully. Though the relationship may be regarded as tenuous due to the data having been recorded solely by the teachers, it does suggest that the mothers either had these successful behaviours already in their

Table 6.10 Rankings of High-frequency Teachers' and Mothers' Behaviours associated with Positive/Desirable Child Outcomes

	Teachers' rankings	
	Of own behaviours	Of mothers' behaviours
Teacher 1	questions explains suggests activity extends	explains encourages questions
Teacher 2	extends mandates questions suggests activity explains	converses explains questions listens/watches
Teacher 3	suggests activity explains questions	encourages explains questions
Teacher 4	explains questions suggests activity extends	explains encourages questions

behavioural repertoire, or that they introduced successful behaviours in interactions with their children using teachers' models. The latter was, of course, one of the objectives of the Home-based Program.

The TOPC data indicated that the teachers modified their own behaviours over the year and perhaps successfully modelled positive behaviours for mothers.

Summary

At the beginning of this chapter it was stated that the process data collected about the five programs would be analysed, firstly to determine whether the programs were implemented as intended, and secondly to monitor the un-intended events that may have occurred within the programs. To this end different data-gathering activities were undertaken within and across the centre-based programs. While there were obvious gaps within the data due to the pressures associated with the implementation of programs as well as their evaluation, there is a consensus indicating that the programs were implemented as intended. However, it should be emphasized that the process data, comprehensive as they were, only reflect a minor percentage of the total ongoing classroom processes occurring throughout the year. Yet these data do reflect the significant events that occurred within the various programs and do add some substance to the program descriptions featured in chapter 4.

To suggest that no unintended events occurred within the classrooms is patently absurd. They did occur, but were for the most part minor in nature and were hidden when the overall process data were aggregated. The important finding is that no major unintended events which would have subverted the programs' intentions were revealed by the process data. Therefore it may be argued that the programs were implemented as intended and that programmatic intentions of teachers and program advisers were reflected in the process data that were collected.

7

Community-based Endeavours

The previous chapter described and quantified many of the processes that occurred within the classroom, and evaluated these processes against the goals of the Project. Yet as reference to those goals indicates, the classroom-based processes were only one aspect of the Project. Equally important were parental and community involvement with schools, the second listed Project goal. This chapter will describe some of the initiatives that were taken by the Project in order to achieve this goal. In many ways these descriptions are only sketches of the total situation, because Project personnel were often more concerned with 'getting things done' than with describing and/or evaluating the events that occurred. Such evaluation activities would have often been viewed by parents as intimidating, and so could have been counterproductive.

Community Attitudes towards Schooling—Some Generalizations

For many years, parents and other members of the Australian community have held ambivalent attitudes towards education in general, and towards schooling in particular. The surveys into community perceptions of education all indicate that the overwhelming majority believe that attendance in schools is highly desirable for all children, and that it is essential for societal development (see, for example, Baumgart, 1979). Arguments occur about the quality of the education which children receive and about the relevance of many curricular practices to their future employment opportunities. Successive studies have highlighted the relationship between the educational success or otherwise of disadvantaged youth, their hopes for and the realities of full-time employment and the adjudged 'failure' of educational provisions for such children (cf. Williams, 1979). Attempts to remedy these situations, while often politically advantageous, have tended to be 'band-aid' approaches to the problems of the disadvantaged. Nevertheless, the general public does seem to have a positive attitude towards the educational system.

> Overall, schools were fairly well regarded. Neither primary nor secondary students were perceived to work too hard but their work was seen by most as productive. Primary schools tended to be rated above secondary schools. (Baumgart, 1979)

Such surveys also indicate that about seventy per cent of parents are generally content to leave schooling in the hands of teachers, and their reasons range from 'they know best' to 'that's what they are paid to do!'. The minority, who are concerned about the role of parents and the community in education, cover a wide spectrum. There are those who believe that schools should draw upon community resources to provide more effective and worthwhile education for children, but who are quite prepared to let the schools initiate the link. On the other hand, there are others who think that parents and the community have a legitimate right to share in educational policy-making, which goes far beyond serving in the school canteen once a year. At the political and administrative levels in New South Wales, community involvement in education is encouraged as a matter of principle (cf. NSW Department of Education, 1974). However, the officially desired degree of community involvement has been affected by the attitudes of the NSW Teachers Federation (the teachers union), which was not prepared to accept the extent of community involvement advocated by departmental policy. The consequence of this stand-off is that schools do make individual attempts to involve the community in education, but the overall situation is one where parents and the community can become involved in schools only on the schools' terms. Comparatively few parents are willing or have the necessary skills and opportunities to change the status quo.

Community Attitudes towards Schooling in Mt Druitt

The above also applies in the Mt Druitt area, but there were several factors that tended to produce localized community perceptions about schooling. First, at a superficial level, schools were highly visible in the area. The large number of school-age children meant that schools were built relatively close to each other and most parents lived within 500 metres of a school. Moreover, the schools were architecturally attractive and tended to dominate the repetitive housing landscapes, especially as they were surrounded by large green areas. Second, the first schools were also the first 'government' institutions within Mt Druitt. Principals appointed to these schools often found that they had to serve as community ombudsmen, and attended to a wide range of demands beyond schooling. The successes they had in carrying out this role often meant that the community developed quite favourable attitudes towards their local schools.

Third, parents often stated that their children 'had to do well at school' so that they would not necessarily relive their parents' life-style. From this perspective success in schooling was viewed as a mechanism for their children's upward mobility. This expectation is no different from that expressed by most middle-class parents. But in this setting the early hopes parents expressed were generally not fulfilled, as the realities of their children's subsequent schooling performances often conflicted with their expectations.

Coupled with these perceptions were the unhappy schooling experiences of a number of parents in the area, and this coloured their views about education. To have them adopt a meaningful, contributory involvement with schools was not always easy and, indeed, some expressed open hostility to schools and to 'those teachers who live in other places and look down on us'. However, most parents did have positive attitudes towards the schools, tempered by views such as 'I've never known how to talk to a teacher or head mistress about things I was worried about' and 'I'm not an educator so I should keep away so that teachers can get on with their job'.

Teachers' Views about Community Involvement in Schooling

Teachers' views about parents and community roles in schooling are also important. Without a doubt it is the perceived and real attitudes of teachers towards community involvement that will largely determine the effectiveness of attempts to create a real dialogue between schools and homes.

Most teachers receive little input during their preservice education concerning the values associated with community involvement in schooling. If they do, they usually cannot see the immediate benefits arising from this idea, swamped as they are by the need to master particular teaching skills, curriculum content and administrative practices. Rarely do preservice educational institutions concern themselves with the practicalities of initiating school-community involvement. Neophyte teachers are usually concerned with coping with the children in their classrooms and surviving through their first months of teaching. More theoretical concerns pale into insignificance. It is only when teachers feel secure in their teaching roles that they are generally prepared to countenance school-community interactions.

If the young teachers in Mt Druitt schools felt insecure about school-community involvement, this could not be said for the majority of school principals, infant mistresses and regional administrators. While to some extent they could be said to mirror departmental policy, with statements such as 'It is good for parents to know what we do in schools', the majority were conscious of the extra attempts the schools had to make to develop cohesive school-community involvement policies. They perceived that there would be a 'pretty low' expectation of school-community involvement:

> A lot of the parents just don't know how to operate in social situations and are frightened. The schools do try to help but there are not a great many social activities around to make the parents more sophisticated in their approach to such operations. It is only in the more established areas of Mt Druitt that you get community leaders emerging. (Taped comment from teacher)

The schools, because of the central roles thrust upon them in the development of Mt Druitt, attempted to operate a number of programs for parents but often the thrust of these activities diminished because of competing pressures upon school administrators. In the words of one principal:

> Everybody gains from involvement. Parents make decisions about their children, their welfare and their future vocation in a black-out. This of course is patently absurd. Yet because of the many and varied roles I have to perform each day, especially with a young staff, I often get a guilty feeling that I'm not doing enough.

Another claimed:

> Parental involvement is threatening, but only because our decisions can be questioned. I don't like this but it's the best thing in the world for you because you have to have a second look, don't you? Therefore I think that we have to make the effort, otherwise we are not functioning effectively as a school. The task would be a lot simpler if we had an effective communicator/organizer to do nothing else. Not a social worker, that's too threatening to some parents.

In summing up the attitudes prevailing in the schools at the beginning of the Project, it is true to say that most principals paid more than lip-service to the idea of school-community involvement and did initiate a number of activities. The principals also supported the Project in its attempt to foster closer school-community involvement. Teachers supported it in theory but the majority, for quite justifiable reasons, were apprehensive about the impact of parental involvement on their usually secure workplace. Of course, given the Project's goals, it was essential for us to try to imbue the Project's teachers with positive attitudes to school-community involvement. This started with the initial training program and continued almost daily over the life of the Project. Even then, one teacher at the end of the Project said:

> I know it's right to involve parents in meaningful ways and we did try. I always felt uncomfortable. I do believe that what we are shouts so much louder than what we have to say, so I did try, but . . .?

The Project's Efforts to further School-Community Relationships

The Project's second goal, of involving parents in the educative process, was not always easily or successfully translated into action. Yet many advances were made and many of the initiatives that were introduced to this end are still continuing. Perhaps the key factor in promoting effective school-community relationships is trust—trust in the belief that both schools and parents are trying to give children the best possible education. No amount of institutional support can overcome torpor or even hostility, if trust and openness are not present.

Over the life of the Project, different attempts were made at two different levels of endeavour to foster school-community relationships. At the institutional level, the Field Committee comprising parental representatives, school and regional administrators and Project personnel was responsible for overseeing the ongoing activities of the Project, including its attempts to encourage school-community relationships. The parental representatives on this Committee effectively contributed to the decision-making processes, and were able to bring new insight to the Committee's deliberations.

At the second level a parent's group was established to support each preschool centre's ongoing activities. At first these groups functioned along 'traditional' lines, as the parents prepared snacks and helped with minor housekeeping chores. However, as time progressed, the teachers endeavoured to draw parents into more meaningful school-related practices. Parents were asked to help plan excursions, generally interact with children and to share their own experiences with other parents. From a small core of involved parents at each centre, other parents were slowly drawn into the daily events of the preschool. At first their immediate focus was on their own child but through more regular interactions the parents extended their attention to include a larger number of children. Teachers overtly encouraged parents to participate by suggesting ideas and activities for them to pursue with children. Parents for their part often covertly modelled their behaviour on the teachers and aides, particularly the latter.

Over the years it was apparent that this slow process of involvement was beneficial to all parties. Parents grew in their understanding of their own children's development and had frequent opportunities to compare their own children's behaviours in the school environment. 'It helped me to understand my child even better.' Moreover the parents' abilities as educators were reinforced through the teacher's guidance. Many parents claimed they had a better understanding of what children can and can't do through such involvement.

Parents benefited in other ways from the experience. Some realized that the school was giving them the opportunity to become involved in decision-making procedures that had some substance. Some parents seized these opportunities, and established book and toy libraries for other members of the community, arranged informal meetings with other parents to discuss issues that concerned them, became more active in the formal school-community associations, set up interest groups such as the Self-Help Establishment, and, in one case, organized their own activities as they believed that the previous arrangements had inhibited their ability to contribute meaningfully to the school. Of course, not all schools achieved equal success in this aspect of parental involvement, but the important point is that all schools openly encouraged parents into the schools.

The Project fostered a number of activities to support the parental and community involvement processes within each individual school. Special booklets were produced for parents outlining the nature of the Project and the details of each program. Newsletters conveyed the results of research activities to parents, and teachers' newsletters suggested ways in which parents could become more effectively involved in the ongoing activities of the schools. Quite a number of film and discussion sessions were established and parents were asked to nominate the topics for such sessions. The success of these sessions led to the running of a number of community-wide meetings on school-community relationships and parental roles in aspects of curriculum planning and decision-making. These events, supported by regional inservice grants, proved to be extremely well received as parents' and teachers' actions were reinforced through discussions with others doing 'the same thing'. The feeling of isolation that can develop, unless ideas are talked through with others undertaking similar experiences in different settings, can affect the enthusiasm of both teachers and parents. It was found essential to provide opportunities to reinforce such initiatives on a community-wide basis.

The Project also saw the value of reaching out to the next generation of parents and with the co-operation of local high schools set up a program of child development practices for high school children. High school/preschool interaction programs were run as part of the personal development and work experience programs for high school students. The following excerpt from one of the Project's annual reports gives some of the flavour of such activities.

> The nature of the involvement in the preschool of students from a local high school was determined by the requirements of the program being conducted at the high school and the needs of the children at the preschool. The high school was providing a work experience program to explore various fields which interested them as areas of future employment; teaching was one of

> these. Their program entailed a basic strategy of input at high school level followed by 'in the field' experience. Students kept a diary of their experiences in the preschool. They noted down their planned activities, the children's responses to them and also unexpected outcomes of interactions. Finally, a videotape was made of students initiating and sustaining an activity which was screened for them at a final session. The tape will be used as a training film for students interested in the same type of experience next year.
>
> We noticed that sessions at the high school tended to be less interesting for students than the fieldsite experiences. Originally, we intended to have discussions after each fieldsite experience, so that students could pool ideas, but this never eventuated. We feel that all sessions would be better conducted at the fieldsite, where input and practice could be closely related. Feedback from both teachers and students confirmed that the interaction with the children was seen to be the central part of the program. Teachers commented that the students 'contacted children well and communicated with them fluently and easily', and 'they were task-oriented, purposive and interactive'. Students for their part said that '. . . the teachers were willing to co-operate with us when we came . . . we did learn from the experience—how to co-operate with the children'. 'I enjoyed the time we spent with the children. I feel I learned quite a bit about children's behaviour. However, I do not feel that preschool teaching is what I would like to do.'
>
> Across the Project the previously established film groups, discussion groups, high school student interaction programs and personal development courses have been continued successfully and we intend to extend these contributions wherever possible in 1978.
>
> All in all we feel more positive about the potentialities for realistic school-community involvement in the forthcoming years as teachers and parents appreciate the mutual benefits that such co-operation engenders. Certainly the continuous support of the administrators within the Education Department will assist in bringing the schools closer to the communities they serve.
>
> (Mt Druitt Early Childhood Project, *Third Annual Report*, 1978)

Another approach started in the infants school was to offer courses to parents in nominated areas, with the emphasis placed upon active parental involvement in school activities. The following describe outreach activities at one school.

Outreach to the Community

> Early in March letters were sent to all of the parents in the five classes which included Home base children and about 70 of these were returned. Some parents indicated that they had no time, or interest in involvement in school activities, but the majority of the replies indicated one or more preferences. The options were:
>
> 1 Assistance in pre-reading and pre-writing experiences
> 2 Assistance in language activities (listening and talking with children)
> 3 Assistance in number activities

4 Regular parent discussion meetings
5 Belonging to a school organization, e.g. toy library
6 Helping to form a community support group

The four most popular choices were 1, 2, and 3, the class centred ones. Class teachers were asked to provide times when they would prefer to have parents in their classrooms. Two teachers had an open view of the program, the other two preferred assistance at specific times when the focus was prereading or writing, craft and creative activities. However, one of these was prepared to involve parents in number work. Whenever selection 1 was indicated the teacher became responsible for interesting the parent and planning the level of involvement. In the case of options 2 and 3 the program adviser offered workshops with limited baby-minding facilities.

Language Workshop for Parents

The initial enrolment for this group was 24 but the membership did not remain constant throughout the seven sessions. The effective enrolment was 12 but these mothers (no fathers attended) saw the sessions through in spite of acute accommodation problems. Some of the mothers who failed to continue did so because they preferred the practical aspect of classroom assistance to theoretical discussion and workshop activities. The workshops began with an emphasis upon the mother's role in determining the growth of the child's language and moved on through listening exercises to a discussion of the pattern of language acquisition, and the emergence of language disorders in the early years. Some of the mothers' listening experiences took place in the classroom, others at home, and the latter were of special interest because most mothers were not aware of their own children's speech and language at this level of specificity. The Laura Lee (Lee, 1975) syntax analysis was used. Of the 12 mothers who participated in and became involved in language interaction with children, 8 had been in the Home based program in 1977. One of these was extended by Teacher 1 in his own classroom by means of group and individual work with 3 or 4 children using the Peabody [illegible] kit. The remaining opportunities existed only in the language resource room, a withdrawal room for language enrichment. The participation of mothers in the language resource room proved to be a valuable one because—

it gave the teacher at least some opportunity to break down the withdrawal classes into manageable groups for language interaction;

it gave mothers opportunities for taking initiatives under supervision; and

mothers could learn a great deal from the language resource teacher.

Toys which were provided from Bernard van Leer Foundation funds for parent involvement were supplied for this classroom. The majority of these were selected by mothers after they had already had some experience of levels and needs. Attendance of mothers was based on a weekly or bi-weekly commitment lasting about one and a half hours. During this period, three different withdrawal groups would have experienced some interaction with mothers when they were available. However, the number of regular helpers dwindled over the year due to illness, employment of the mother, and personal factors like lack of confidence in interactive skills. Insufficient support was available for this group who could have used the full participation of the program assistant in the early stages of this work since the number of children with structural and functional language difficulties in the whole of the Infants Department was quite large. Moreover, teachers are not generally equipped with adequate screening or diagnostic procedures for the selection of the most needy children. Many of the children are referred for behavioural reasons rather than for language defects.

The most valuable lesson from this attempt was that there is a pool of talent available for such individual work with children, but that it requires development. Support from the teacher is necessary at first because the belief exists in the minds of the parents and teachers that developing children's language is a specialist skill. It was possible to incorporate some parents who had not attended the workshops, into the language activities once the routines had been established. Three mothers gave so much of their time that they developed initiative, one undertaking some self-instruction in DISTAR language screening (Engelman and Bruner, 1972).

Parent training in structured teaching was not a new concept at Bidwill. However, its use in the language resource room for infants classes had not previously occurred. Plans were made to begin training a small group of mothers in DISTAR Language I early in 1979.

One unintended outcome was the effective learning achieved by two mothers whose own children were defective in communication skills. In one case the mother participated in language resource room activities twice a week, and in part of this time interacted with her own child as well as others. In the other, the mother benefited from workshops and private discussions and practical implementation at home.

Mathematics Workshops

Although as many mothers nominated numbers as a 'helper' subject, only 5 active members remained at the end of the 5 sessions. This was attributed to the lower level of confidence in mathematics than in language skills. However, the anxieties expressed by mothers suggested that they wished to understand how to help their children with home work rather than to teach mathematics in the classroom. At the end of the second session one mother voiced her difficulty in connecting the workshops with actual number tasks in the classroom. Following this, two demonstration lessons were provided by teacher 1 and teacher 3 and created interest in Cuisenaire and other concrete activities. The theme of the mathematics workshops was set by the Nuffield film 'Maths with Everything' and the mothers of preschool-age children found it most interesting because their children could be observed learning mathemathics through play. Had permanent workshop accommodation been available, the quality and enjoyment of these sessions would have increased due to the number who wished to be able to follow some of the Nuffield activities. Teachers 3 and 4 made use of four of the 5 workshop mothers when they were available and gave them considerable support in lesson preparation so that they were able to take charge of an activity table with eight or more children at a time. The remaining 'maths mother' assisted in class 5 and was not observed by the adviser. Toys were bought with the mothers' active involvement, but the preparation of these for

> classroom use proved to be a long and difficult task and on the whole the mothers preferred to use teacher prepared materials, although one mother was unusually resourceful developing ideas for the group.
>
> One problem with mathematics involvement is that it needs to be more systematic than other helping tasks, so that regular attendance by the mother is desirable. Such is not possible when illnesses of the children and other family problems intervene. A larger pool of mother helpers would reduce this problem to some extent, but not do away with it altogether because continuity of experience is important to the mother in developing the concepts. These four mothers did have the capacity to understand the child's difficulty in acquiring a concept. This meant that they could be trained as testers to assist in data collection at the end of the year. (Mt Druitt Early Childhood Project, *Fourth Annual Report*, 1979)

In all of these activities the teachers and their attitudes were the key factors in determining how endeavours successfully became realities; some were more skilful than others. At times some expressed disappointment at the number of parents who were continually involved. Reasons for the fluctuations were discussed by teachers and parents and generally these discussions were positively reinforcing to both groups. Teachers for their part realized the effects which long-established practices had on parental attitudes and on parents' subsequent willingness to participate. Parents for their part gained a greater understanding of teachers' anxieties, such as 'It's like teaching in a goldfish bowl with all the parents around . . . I have to watch myself all the time'. Such natural anxieties usually disappeared over time as an atmosphere of mutual trust was established. Further, teachers came to realize that their expectation of getting all parents actively involved was unrealistic. Through incidental and planned discussions the teachers gained greater insights into the life-styles of parents and into the daily events of the area. Consequently teachers' own expectations were modified by the realities faced by some parents, and usually more positive and realistic expectations developed over the years. Certainly at the end of the Project harmonious and productive relationships between the school and the community were strengthened.

A number of other activities promoted by schools, teachers, parents and community groups to foster school-community relationships are summarized below.

1 Special booklets were prepared for parents to explain the aims and practices of the various programs.
2 Regular newsletters were sent to all parents to keep them informed about research findings and developments.
3 Feedback was provided to parents concerning their child's progress at school.
4 Inservice conferences were run to gain insight into community

expectations of their school and to involve the community more in curriculum planning.

5 The Self-Help Establishment (SHE) was set by the Home-based program for women wishing to talk to someone about any topic.

6 A talking forum was instigated where intense discussion could take place.

7 Parents were encouraged to be present in classrooms.

8 Teachers made themselves available to talk with parents who expressed concern about their children and to visit families at home.

9 Teachers sent home a precis of planned activities with suggestions to be followed up by parents.

Other groups were taken specifically by parents to ensure their own participation and improve school-community links. Groups of parents organized a toy and book library for members of the community, and informal group meetings were arranged to discuss issues concerning their children and the school. In the classroom, parents prepared materials, took part in day-to-day school affairs and became involved in school policy-making.

What did Parents and the Community think about the Project's Activities?

Before the Project was officially launched in 1975, there were numerous meetings with officials and school administrators from Mt Druitt about the proposed developments. While there were a number of meetings and interviews with parents, it may be said that the majority of local families did not know about, or comprehend the Project's goals. A variety of activities were undertaken to publicize the Project's intentions for children, schools and parents. These included calling public and school meetings with parents and teachers, using the media to publicize the Project's activities and spending countless hours talking with various parental and community groups about the hoped-for outcomes.

In spite of this, there were still parents who did not understand the Project's objectives. It was necessary to reach such parents and to try to explore their views so their parental ideas could play a role in formulation and evaluation of the goals. Further, it was necessary to understand the particular patterns of parental attitudes to, and perceptions about, the different programs, in order to have any adequate explanation of their varying effects on children, parents and the community.

To achieve these ends, a number of formal and informal evaluation methods were used. For the formal evaluation, interview schedules were developed for the preschool and Kindergarten years.

Table 7.1 Parents' Expectations/Perceptions about Preschool (PEPI) Classification of Objectives

	General developmental objectives
Cognitive	Logical thinking (e.g. space, time, number concepts) Representation—formal (e.g. language) —expressive (e.g. divergent production: dramatic play, creative activities)
Affective	Personal attitudes and skills (e.g. independence, confidence) Social attitudes and skills (e.g. co-operation, conciliation)
Psychomotor	Fine motor skills Gross motor skills
	Specific school objectives
School-related skills	Academic and social skills, styles, behaviours (e.g. shapes, letter recognition, attentiveness, body maintenance skills, obedience to rules)

Parents' Expectations and Perceptions about Preschool

The schedule, *Parents' Expectations/Perceptions of Preschool* (PEPI), was developed to determine parental expectations and perceptions about the different programs. To facilitate discussion, an interview format was used in which parents could state their expectations of the program at the beginning of the year and then later state their perceptions about preschool education. Space was provided to record general discussion as well as their responses to a structured set of items. Opening probes preceded the structured section to allow spontaneous or prepared comment and so that particular issues or 'problems' could be taken up throughout the session.

The structured format was compiled to represent the goal behaviours for preschool-age children from three sources:

1 the major dimensions specified in the objectives of the five programs, that is both general developmental and particular school skills and attitudes, as set out in Table 7.1;
2 general developmental and specific age-related behaviours; and
3 parents' specific expectations of preschool programs for themselves and their children.

An exhaustive list of behaviours was generated from these sources, then rationalized for their significance and variability. Items were grouped into a general developmental set and a specific school set. This was not to refine necessarily independent, substantive conceptual areas, but rather to classify the range of objectives in order to facilitate coverage and reduce redundancy. Nor did all objectives have a similar level of specificity, as some took in whole developmental areas (language), others crossed areas (school competence) and still others were peculiarly idiosyncratic (argumentative), after the forms used by parents in exploratory discussions. Items derived from each of the areas were trial tested and then redrafted to overcome language or conceptual difficulties.

PEPI was administered to parents at the beginning of the year (for their expectations) and again at the end of the year (for their perceptions). One hundred parents of children attending the five preschool programs were randomly selected for interview (twenty from each program). These parents were contacted by letter and asked either to attend interviews at the preschools or at home. The acceptance rate by parents for the interviews at the beginning of the year was ninety-four per cent and at the end, eighty-seven per cent.

The interview procedure first asked parents to rate their child on a number of behaviours in order to make parents focus on specific rather than on the global or idealized behaviours frequently reported in such studies. The other purpose in starting with the behaviour inventory was to establish some normative base, and so provide parents with a comprehensive set of behaviours to use in forming their expectations/perceptions of preschool for their children, which was the next task. Both at the beginning and end of the year, parents were asked a number of open and structured questions. Finally, parents were asked to indicate how their child's attendance at preschool would/did affect themselves.

To facilitate data collection and to ensure that Project personnel did not either overtly or covertly influence the responses, the interviews were conducted by two mothers living in Mt Druitt who were trained in interviewing techniques.

All open-ended responses were subjected to a content analysis to organize the information into categories, first of all to approximate the structured items and then to identify other areas. Simple tallies for the categories were then made within programs. Frequency distributions were made for the expectation/perception inventory to obtain a ranking of items, and means were calculated for each item across sites and subjected to an analysis of variance to determine differences among programs. Similarly, an analysis of variance was performed on means of items from the behaviour inventory.

Parents' ratings of their child's behaviour at the beginning and end of the year The ranking of responses to the beginning and end of year administrations of the behaviour ratings of PEPI are shown in Table 7.2. At the beginning of the year most parents saw their children as

Table 7.2 Parents' Ratings of Preschool Children's Behaviours from PEPI

		Rank	
	Item	February	November
46	Feed self	1	1
38	Understand instructions	2	9
32	Is curious	2	6
3	Knows what things are for (tools, kitchen things)	2	4
33	Toilets self	5	3
13	Knows sizes: bigger, smaller	5	5
36	Can climb	7	8
50	Remembers things (recalls events, stories)	8	2
49	Sings songs, says rhymes	8	12
52	Asks questions (for information, to find out about things)	10	7
15	Can assemble things (beads, jigsaw, construction sets)	11	14
39	'Reads'/Looks at books	12	10
47	Plays make-believe games	13	24
43	Well co-ordinated	14	16
29	Asks for stories (to be told, read)	15	27
23	Can get things to work (toys, telephone)	15	29[a]
30	Speaks clearly	17	18
19	Independent	18	20
1	Communicates easily	19	19
24	Can match things that are the same (colour, shape, size)	20	11
14	Plays imaginatively with toys	20[a]	15
44	Follows directions	22	21
26	Dresses self	23	21
35	Argumentative	24	37
5	Can catch things (balls)	25[b]	21
2	Counts things	26	13
27	Confident	27	25
53	Makes up own stories	28	33
37	Shares things (toys)	28	25
48	Knows colours (names)	30[b]	16
20	Co-operative with adults	30	29[a]
28	Tantrums when frustrated	32	43
54	Gets attention the right way	33	34[b]
4	Concentrates on things	34[b]	32[b]
31	Can predict outcomes of actions (If I do this then "X")	35	28
7	Listens carefully	36	42
45	Self-controlled	37[b]	40
17	Takes care of belongings (clothes, toys)	38[b]	39
42	Easily distracted	39	41[b]
22	Finishes things (tasks, puzzles)	39	38
12	Talks about he/she feels	41	36
55	Dependent on mother	42	52
18	Organizes games, plays with others	43	44
25	Can explain things (how things work, cause-effect)	44[a]	31[a]
34	Anxious	45	46
51	Plans, thinks how to do things first	46	48
21	Shy with adults	47	50
40	Understands about time (days, sequences)	48	46
10	Copies letter shapes (writes name)	49	35

Table 7.2 *continued*

Item	Rank	
	February	November
11 Disrupts play with other children	50	53
9 Draws pictures with a lot of detail	51	45
41 Knows left from right	52[b]	48[b]
8 Knows letters of the alphabet	53[b]	50[b]
16 Prefers to play alone	54	55
6 Shy with other children	55[b]	54

[a] Differences among program means significant at $p < 0.05$.
[b] Differences among program means significant $p < 0.01$.

competent in body maintenance skills (feeding, toileting, dressing), able to understand instructions and remember things, as physically competent (able to climb, assemble things, co-ordinated), and as good communicators who were curious and imaginative. Few saw their children as shy or anxious with other children or adults, or overly dependent upon them. Children were not viewed as being disruptive, but they were considered unable to plan or organize their own play and remain self-directed and controlled. Moreover, they had none of the skills required for reading and writing and were not able to listen carefully, or concentrate on finishing tasks. Co-operation with adults was minimal and parents believed that their children did not use appropriate ways of gaining their attention.

At the end of year sessions parents were asked to describe the ways in which their children had changed over the year. Parents from the Home-based and Contemporary Programs were clearly the most vocal. Many cognitive and affective behaviour changes were described. The most frequently mentioned (by more than half the parents) were particular competencies, both school-related (colours, numbers, shapes, sizes) and general developmental behaviours (self-direction, maturity) as well as language skills.

Almost as many parents listed increased sociability of their children, who were now less shy and able to mix better with other children. Children were also judged to be more independent. Home-based parents reported more obedience among their children. Negative behaviours (being more argumentative, aggressive and so on) were rare (less than five per cent of responses), but were more frequent for both the Contemporary and Home-based Programs.

Parents obviously perceived their children as developing higher levels of skill in all of the areas listed and specifically as having developed more independent, confident and co-operative behaviours. Ratings of argumentativeness and shyness, however, remained the same.

Quite consistent ratings were made across the programs. At the beginning of the year only ten of the fifty-five items had significantly different mean scores across the five programs (see Table 7.2), with both the Behaviourist and Competency Programs' ratings higher than the others and the Home-based Program's ratings consistently lowest (for eight of the ten). At the end of the year, eight items had significantly different ratings across the four programs, including four of the items from the first administration of PEPI. Again, on these few items, the Behaviourist and Competency Programs rated consistently higher than the other programs and Home-based ratings were lower on all nine.

Parents most wanted opportunities for contact with other children so that their children might become less shy, more confident and better able to co-operate with others. They expected preschool to facilitate children's cognitive development and make some start at teaching skills. Preschool resources—facilities, equipment and trained teachers with different skills and ideas were valued. The slow ease into the schooling environment was expected to be an important preparation for 'formal' schooling.

Some doubts about the possible effects of preschool were expressed ('might not work out', 'child might be too young to cope with separation', 'five days might be too many at this age').

Parents of the children in the four centre-based programs more frequently listed social objectives as being desirable with cognitive/school-related objectives being rated lower. Home-based parents perceived preparation for school as important.

Parents' expectations about their child's attendance at preschool In the structured section of the interview parents were definite about the types of learning and behavioural styles and skills which they expected preschool to develop in their children. Attention styles were rated highly (concentration, listening, non-distractibility, perseverance) as well as general cognitive skills (understanding instructions, understanding what things are for, explanation, communication). Socialization for co-operation and conformity was also expected (co-operative play, self-control, obedience, reduced tantrums, sharing attention appropriately, co-operation with adults). Some specific content was expected: number, singing, co-ordination, colour identification, left/right discrimination and speech, but this was seen within a broad and flexible perspective. Traditional content (beginning mathematics, reading, writing) was given a more moderate emphasis. The Bank Street College Interview (1973) obtained a similar emphasis for traditional/academic content,but lower expectations of social/personal development. Generally psychomotor, body maintenance and divergent/play activities were the lowest rated (toilet, feed, dress self;

climb, catch; draw pictures, play make-believe games, curiosity, imaginative play, make up stories).

Sixteen of the fifty-five items were rated differently across the groups of parents enrolling their children in the various programs (see Table 7.3). The parents of children in the Behaviourist, Competency and Contemporary Programs rated their children higher on most of the items than did the parents of children enrolled in the Cognitive Program, while Home-based parents rated their children lowest on thirteen of the items.

It was clear that the parents' expectations of preschool were affected by children's particular behaviours and skills, and were not simple reproductions of acceptable values. Children were seen to be competent in body maintenance skills so these were given low priorities for a preschool program, as were play and expressive activities. The skills seen to be undeveloped, i.e. careful listening, concentration and perseverance with tasks, had priority. Similarly, an emphasis on socializing children into co-operative interactions with other children and adults was valued highly. The traditional content areas remained only moderately important for children of this age.

Parents' perceptions about their child's attendance at preschool At the end of the year the parents were interviewed again to determine their perceptions about the children's attendance at preschool (see Table 7.3). In contrast to their expectations parents rated cognitive (logical and school-related) skills, styles (concentration, perseverance) and language skills as having been most affected by attendance at preschool. Personal skills (independence, confidence, assertiveness) and social skills (co-operation) were also seen to have been developed. Parents of children in the Contemporary Program particularly mentioned the traditional preschool areas (craft, puzzles, games, songs, rhymes), while the Home-based parents were most aware of the preparation for school which the program had provided.

Preschool was seen to have substantial effects over the range of children's behaviours and skills. Not all changes noticed over the year were seen to result from preschool attendance, but preschool had improved children's confidence, their ability to understand instructions and to make explanations. Children were rated as asking more questions, listening more carefully, increasing their school abilities (number, singing, copying letter shapes), and were more interested in looking at books and listening to stories. They were rated as being less dependent upon adults and more sharing with other children. As well the children were rated as becoming more curious and interested in make believe games.

Table 7.3 Parents' Expectations and Perceptions of Preschool from PEPI

Item	Total % response		Rank		Differences between ranks greater than 4
	Expectations	Perceptions			
7 Listens carefully	96.8[a]	76.8	1	11	-10
38 Understands instructions	95.8	92.6	2	1	-
4 Concentration	94.7	68.4	3	21	-18
3 Knows what things are for	93.7	84.2	4	6	-
16 Co-operative play	91.6	76.5	5	11	-6
2 Counting	90.5[a]	84.2	6	6	-
45 Self-control	90.5	56.8	6	34	-28
49 Sing	90.5	91.6	6	4	-
1 Communication	89.5	75.8	9	14	-5
43 Co-ordination	89.5	56.8	9	34	-25
44 Obedience	89.5	53.7	9	37	-28
48 Identification of colours	89.5	81.1	9	9	-
27 Confidence	88.4	82.1	13	8	+5
42 Distractability (less)	88.4	48.4	13	41	−28
22 Finishes things	86.3	65.3	15	24	−9
24 Matches things	86.3	92.6	15	1	+14
25 Explains things	86.3	87.4	15	5	+10
41 Left/right discrimination	86.3	41.1	15	46	−31
17 Cares for things	85.3[a]	48.4	19	41	-22
28 Tantrums (less)	85.3[a]	48.4	19	41	-22
37 Shares	85.3	68.4	19	20	-
52 Asks questions	85.3	81.1	19	9	+10
30 Speaks clearly	84.2	54.7	23	36	813
54 Gets attention right way	84.2	38.9	23	49	−26
12 Talks about feelings	83.2[b]	53.7	25	37	−12
20 Co-operates with adults	83.2	62.1	25	30	−5
40 Understands time	83.2[a]	57.9[a]	25	33	+8
50 Remembers things	83.2	72.6	25	17	+8
51 Plans	83.2	63.2	25	27	-
8 Letters of alphabet	82.1	43.2	30	44	-14
10 Copies letter shapes	81.1	67.4	31	22	+9
15 Assembles things	81.1	76.8	31	11	+20
13 Knows sizes	80.0	92.6	33	1	+32
23 Gets things to work	80.0	69.5	33	19	+14
29 Asks for stories	80.0	63.2	33	27	+6
31 Prediction	80.0	67.4	33	22	+11
39 'Reads' books	80.0	75.8	33	14	+19
19 Independence	78.9[a]	71.6	38	18	+20
11 Disruptive (less)	73.7	41.1	39	46	−7
53 Makes up stories	72.6[a]	62.1[a]	40	30	+10
14 Imaginative play	70.5	62.1[a]	41	30	+11
35 Argumentative (less)	69.5	23.2	42	53	−9
55 Dependence on mother (less)	67.0	75.8	43	14	+29
6 Shy with children (less)	65.3[b]	51.6	44	40	-
32 Curiosity	65.3[b]	65.3	44	24	+20
5 Catches	62.1	40.0	46	48	-

Table 7.3 *continued*

Item	Total % response Expectations	 Perceptions	Rank		Differences between ranks greater than 4
34 Anxiety (less)	62.1	35.8	46	51	−5
26 Dresses self	63.2	30.5	48	52	-
21 Shy with adults (less)	58.9	43.2	49	44	+5
47 Plays make-believe games	58.9[a]	65.3	49	24	+25
18 Organizes games	56.8	52.6	51	39	+12
33 Toilets self	53.7[b]	20.0	52	54	-
9 Draws detailed pictures	47.4	63.2[b]	53	27	+26
46 Feeds self	47.4[b]	13.7	53	55	-
36 Climbs	27.4[a]	37.9[b]	55	50	+5

Note Sixteen items response rate >75%, perceived effect of preschool
Three items no response rate >75%, perceived effect of preschool
[a] Differences across sites significant at $p < 0.05$
[b] Differences across sites significant at $p < 0.01$

Whereas expectations had differed across programs for sixteen out of fifty-five items, perceptions were much more consistent. Only five out of fifty-five items (items 9, 14, 36, 40, and 53) attained significance, and these all had low priority, rendering such significance of little practical consequence. Clearly, given the more divergent expectations of parents across programs at the beginning of the year, and the minimal divergence at the end, there had been *no substantial differential effects on the perceptions of parents of the different programs*. The impact of the preschool experience was to sensitize parents to cognitive/school-related objectives, substituting these for their previous personal/social priorities. While the range of skills and behaviours is still wide within groups, the impact of the preschool programs across groups is consistently perceived, and valued by parents. The most unexpected ratings were the *increased independence which children displayed* and their increase in *imaginative* play (see Messinger et al., 1976:21).

Preschool was rated as having had little effect on the body maintenance skills already acquired and was ineffective in reducing argumentativeness or teaching appropriate attention acquiring strategies, contrary to parents' expectations. No changes in obedience or tantrum behaviour were rated, nor did children take more care of their belongings. Some content areas, too, were little affected—knowing letters of the alphabet, speech clarity, left/right discrimination and co-ordination.

The interview format of PEPI raises some problems for interpretation. Although the items were representative, some parents responded differently to the structured set from the open probes. For example, although Home-based parents were more spontaneously detailed and enthusiastic about the Home-based Program (open), when asked to rate some behaviours (structured), they rated lower than school-based programs. Perhaps the very individual, ongoing discussion between Home-based teachers and parents has established more specific, immediate priorities. Or the impacts of the program may have been somewhat outside the child-focused developmental/school areas covered in PEPI.

When asked in the October interview what were the most important things preschool *should have done*, most parents reiterated general social objectives (especially contact with other children, independence from mother). Language and communication skills were mentioned, as were some cognitive/school skills (numbers, letters). Only two parents suggested particular things that should have been taught (reading and associated skills) while most mentioned that more had been achieved than they had expected.

PEPI items represented the specific goals for each of the programs. As such, parents' initial rankings of the goals and ratings of the children's behaviour provided an important perspective. To enable teachers to consider parents' expectations in developing programs, group data from the first interview session were analysed and discussed. The usefulness of this procedure varied. The Home-based teachers used the information to plan some aspects of their approach and as a general starting point for systematic discussion of a range of developmental and school issues. Some school-based teachers used the information as background for sessions with parents during which the differences between parent expectations and program objectives, both for individual children and schooling generally, were discussed.

Parents' ratings of children's behaviour were perhaps more interesting to the school-based teachers with more definite competency orientations. Similarities and differences between parent and teacher ratings of behaviours were discussed. Observation sessions and evaluation strategies were planned by some teachers to follow up with parents.

Parent-focused expectations and perceptions As well as asking the parents for their expectations/perceptions about their child's attendance at preschool, they were also asked how they believed such attendance would benefit themselves. School-based parents reported far fewer benefits to themselves directly than did Home-based parents. Unlike the Messinger et al. (1976) findings, parents expected only *indirect* benefits to themselves. Home-based parents said they had become better teachers, were more able to manage their children, were more interested in them, understood them better and spent more time now with them, and were glad of the chance to meet regularly with teachers and other parents.

Many school-based parents found they had more time to themselves or to spend with other children, while some enjoyed the break from children and were happy about the child's new found independence and interests. Others missed the constancy of contact and felt more isolated in the community. Some mentioned the organizational difficulties involved in taking and collecting their children from preschool.

Parents were keen to see their child coping with the preschool situation before beginning schooling. They felt that preschool did prepare their children for schooling. Most also expected to learn more about children through their involvement and said that this had happened. Further, they highly valued the skills of teachers.

Home-based parents found that they were involved in school organization more than parents at other centres, who found themselves less involved than they had anticipated. Some parents received more help than they had expected in coping with problems associated with their children.

Summary of the PEPI preschool data Parents most expected preschool to develop a range of social behaviours (co-operation, compliance) in the children and then certain cognitive/academic skills (communication, explanation, counting, prediction, and so on).

Although most ratings of the effects of preschool were below what parents had expected, they nevertheless remained quite high and priorities were mostly met. Cognitive/academic effects were the most obvious areas that parents judged to have been affected by the preschool programs, while the children's communication skills and compliant styles were least affected.

The PEPI interview has provided some clear indications of the ways in which parents viewed the preschool programs. This knowledge enabled program development to become an interactive process where priorities could be determined and worked for in the confidence of a certain home and school consistency. Moreover, the efficacy or arbitrariness of school objectives was able to be evaluated in a broader, more representative context. Likewise, parents were given a wider set of objectives and strategies to consider, and the merits of other ways and means were considered. Open discussion of the issues involved in curriculum development had the potential to generate responsive rationale and evaluation criteria.

The preschool situation has proven extremely viable for such

schemes, since stress on achieving particular school outcomes has not yet become predominant. At the same time the preschool location, in some ways outside the schooling mainstream, may remain exceptional in its responsiveness. Consolidating the legitimacy of initial interactive processes is therefore necessary at the outset, if broadly based responsive programs are to be maintained.

Parent's Expectations and Perceptions about Kindergarten

In recording parent's expectations and perceptions about the preschool programs, PEPI was child focused and treated children's behaviours somewhat independently of familial and schooling contexts. Consequently, during discussions of how the Project was going to collect parental data in the Kindergarten year, it was decided to broaden the focus of the interviews, and to this end a new instrument, *Parents' Perceptions of Programs* (PAPP), was developed. It was multi-faceted and had four sections focusing on a range of issues within the context of the schools' programs. These sections dealt with communication between parents and schools, parents' involvement with schools, parents' perceptions of programs, and parents as teachers of their own children. Descriptions of these four sections, the data collection procedures used and the results of data analyses follow.

Data collection procedures Independent interviewers met with parents at school or at home to complete the survey. The response rate (kept appointments) was lower than for the PEPI interviews at preschool. (However, parents of preschool children were more likely to keep appointments.) Particular or urgent issues arising from the interviews were directly referred to teachers or other agencies. A meeting of all teachers was held to discuss general issues arising from the survey, especially the need to develop more effective communication with parents and the significance for program implementation of the impact of parents' expectations and perceptions.

Unlike PEPI data, PAPP data were only collected at the end of the Kindergarten year. Further, it should be remembered that, while data were collected from parents of the children previously enrolled in the Home-based Program, there was no direct continuation of that program into Kindergarten. Hence the Home-based parents' responses reflect their children's experiences in the Kindergarten classes of the local school where they were enrolled.

Communications between parents and schools Parents' assessments of their children's progress and of the viability of school programs is as much dependent upon the context in which the parents can gain information and form attitudes as it is on the child's actual behaviour, judgment and skills. If parents do not receive reliable information from schools to form attitudes about their child's school performance and behaviours, they will form erroneous views about these issues. The particular behaviours noticed in PAPP, therefore, represented parents' perceptions within some value context and implicit theory of schooling. The modification of this context and understanding of schooling functions has to be a significant part of innovative programs.

In many ways, the various programs attempted to cope with these issues by involving parents in decision-making and in the implementation of decisions. The first section of the interview surveyed the communication system from parents' perspectives. The data in Table 7.4 indicate that there were variations in the way parents perceived the schools, and how the schools informed the parents about school happenings. In schools where parents were actively involved in school activities, contact with the school was a valuable source of information (cf. Competency and Contemporary Programs). Otherwise parents relied primarily upon the anecdotal information which their children provided and, to a lesser extent, the more formal notes sent home from the school.

Table 7.4 Parents' Perceptions of Programs (PAPP)— Communications between Parents and School (Frequencies)

Communication between parents and school		Program				
		H-b.	Behav.	Cont.	Comp.	Cog.
1 How do you mostly find out about what is going on at school?	notes	37.5	18.2	18.8	28.6	60.0
	contact	12.5	22.7	62.4	35.7	20.0
	children	43.8	59.1	18.8	35.7	20.0
	newsletter	6.2	0	0	0	0
2 Do you get much information from: (a) your child	not much	6.2	4.4	25.0	28.6	25.0
	some	43.8	22.7	43.8	21.4	40.0
	a lot	50.0	72.7	31.2	50.0	35.0
(b) other parents	not much	68.8	86.4	31.3	71.4	45.0
	some	25.0	13.6	37.5	21.4	40.0
	a lot	6.2	0	31.2	7.2	15.0
(c) teachers	not much	56.2	27.3	18.5	35.7	25.0
	some	25.0	22.7	31.3	42.9	50.0
	a lot	18.8	50.0	50.2	21.4	25.0
(d) visiting the school/observing	not much	68.8	27.2	12.5	21.4	30.0
	some	18.8	27.3	25.0	42.9	35.0
	a lot	12.4	45.5	62.5	35.7	30.0
(e) notes from the school	not much	12.4	13.6	18.7	14.3	5.0
	some	18.8	27.3	25.0	14.3	20.0
	a lot	68.8	59.1	56.3	71.4	75.0
(f) other		43.8	81.8	87.5	91.9	60.0
		56.2	18.2	12.5	7.1	40.0
3 Do you get enough information about how your child is getting on at school	not much	50.0	18.2	18.8	42.9	15.0
	some	25.0	9.1	43.8	14.2	20.0
	a lot	25.0	72.7	37.4	42.9	65.0
4 Do you get enough information about how to help your child with school work?	not much	62.5	40.9	56.2	57.2	30.0
	some	31.3	27.3	31.3	21.4	25.0
	a lot	6.2	31.8	12.5	21.4	45.0
5 Do you get enough information about special help/services you can getfor your child? (counselling etc)	not much	56.2	59.0	50.0	42.9	70.0
	some	18.8	22.9	43.8	42.9	25.0
	a lot	25.0	18.1	6.2	14.2	5.0
6 Do you get enough information about things you can do for/ with your child at home? (things to get, do)	not much	62.4	54.6	50.0	57.1	50.0
	some	18.8	13.6	18.8	14.3	15.0
	a lot	18.8	31.8	31.2	28.6	35.0
7 Do you get enough information about *what* your child is taught?	not much	37.4	22.7	43.8	57.1	30.0
	some	43.8	31.8	37.4	7.2	25.0
	a lot	18.8	45.5	18.8	35.7	45.0
8 Do you get enough information about *how* your child is taught?	not much	18.8	18.2	6.3	7.2	5.0
	some	37.4	27.3	43.5	35.7	30.0
	a lot	43.8	54.5	50.2	57.1	65.0

It is noticeable that contact with the school did not necessarily provide parents with sufficient information about their children's performances. For example, in one of the schools where parents had relatively high contact (Competency), forty-two per cent of parents claimed that they did not receive a lot of information about how their children were performing at school. Yet this does pose a conundrum, for the school where parents claimed to receive the least amount of information from children (Behaviourist) had the highest satisfaction percentages for information about how the children were getting on at school. (It was not possible to test the authenticity of the children's information.) Probably the type of information that the children's parents in the Behaviourist school received was perceived to be more directly useful by parents.

The two programs that devoted the greater attention to informing parents about their children's school work and about how parents might help their children, and also about *what* and *how* their children were taught in school, recorded the highest percentage of satisfaction from parents (Behaviourist and Cognitive). It is difficult to determine how the parents could have expressed high levels of satisfaction about the ways in which the schools communicated *how* their children were taught (cf. Question 8, Table 7.4) without parents having been informed about *what* their children were taught. The data do not provide sufficient information to enable this difference to be resolved, but it is possible to state that overall the majority of the parents were satisfied with school-parent communications.

Parents' involvement with schools The direct involvement of parents in programs is a problematic issue, with advantages and disadvantages for both parents and teachers. Information about involvement from the parents' point of view mostly comes from those who are happily and regularly participating in the schools' activities. Little is known about other parents' attitudes to this new possibility/responsibility of parental involvement.

This section of the interview collected data on the context of involvement—specifically, on the attitudes, quality and quantity of involvement. In an attempt to discover parents' perceptions about their involvement with schools, a number of specific questions about this were included in the interview (see Table 7.5). On the whole, the parents believed that they received enough opportunities to talk with their children's teachers, although there were fewer of these opportunities for the Home-based parents in the school where the majority of their children were enrolled. However, there were some differences in the parents' perceptions of their opportunities to participate in school activities. Fifty per cent of parents of children in the Competency

Table 7.5 Parents' Perceptions of Programs (PAPP)—Parents' Involvement with School (Frequencies)

Parents' involvement with school		Program				
		H-b.	Behav.	Cont.	Comp.	Cog.
1 Do you get enough chance to *talk* to your child's teacher?	not much	50.0	13.6	31.3	28.6	15.0
	some	37.5	13.6	12.4	21.4	25.0
	a lot	12.5	72.8	56.3	50.0	60.0
2 Do you get enough chance *to participate* in school activities?	not much	62.5	36.4	12.4	50.0	35.0
	some	6.3	13.6	18.8	0	20.0
	a lot	31.2	50.0	68.8	50.0	45.0
3 Have you been personally *invited* to come to the school this year?	no	50.0	9.1	12.5	28.6	10.0
	yes	50.0	90.9	87.5	71.4	90.0
4 How many times have you *been to the school*?	0	6.3	9.1	12.5	21.4	0
	1-5	62.5	22.9	29.3	21.4	30.0
	6-10	6.3	22.7	12.5	14.3	35.0
	10-20	12.5	13.6	0	14.3	15.0
	20-50	6.2	13.6	39.5	7.2	10.0
	50	6.2	18.1	6.2	21.4	10.0
5 How many times have you been *involved in some activity* in the classroom?	0	56.3	22.7	18.8	42.9	30.0
	1-5	6.3	31.8	18.8	14.3	20.0
	6-10	18.8	9.1	12.5	0	10.0
	10-20	12.3	13.6	12.5	7.1	15.0
	20-50	0	18.2	37.4	28.	20.0
	10	6.3	4.6	0	7.1	5.0

Program who were interviewed claimed they did not have much chance to participate in school activities, while an equivalent percentage claimed that they had had a lot of opportunity to participate. Yet the response to Question 3 in Table 7.5 revealed that in the four centre-based programs, the large majority of parents were personally invited to come to the school during the year. Again the parents' responses to Question 1 in Table 7.5 are contrasted with their responses to Question 4 relating to the number of times the parents went to the school. In each program, most parents had been to the school and, as the responses to Question 5 in Table 7.5 indicate, the majority of parents were involved in some activity in the classroom. Why some of the parents who had been to the school and were involved in school activities felt that they had not received enough chance to talk to their children's teachers is hard to explain. It may be that these parents felt diffident about approaching the teachers, or it may be a reflection of some peoples' beliefs that they are never given enough opportunity to discuss fully their children's progress with teachers.

Overall, the responses to the questions about parental involvement in the schools indicated that parents felt they were invited to participate in schools and many took the opportunity to do this.

Parents' perceptions of programs From the PEPI interviews several general issues emerged as important in the value systems of parents. Their satisfaction with a program was based on a conglomeration of children's satisfaction, performance in certain content areas, social/behavioural styles and teaching mode/procedures. PAPP incorporated these general issues in its interview schedule and attempted to track global *perceptions* of centre-based programs. For example, it focused on the parents' degree of satisfaction, their children's progress in basic content areas and behavioural styles, as well as classroom milieu.

It was important to ascertain parents' perceptions about the four continuing Kindergarten programs. To this end, parents were asked a number of specific questions about curricular issues. It was not possible to ask the same questions of the parents of children enrolled in non-program classes in the same schools, as not all schools had enough classes at each year level to permit this. These data are reported in Table 7.6.

Parents did appear to be satisfied with the programs, though a larger percentage (thirty-six per cent) were unhappy with the practices followed in the Competency Program than was the case with the three other programs. Nevertheless, the overwhelming majority of parents perceived their children as being happy with school, with eighty-six per cent of parents of children in the Behaviourist Program saying that their children were very satisfied with school.

When the data about the parents' satisfaction levels with their children's progression in curricular areas are examined, a varied picture emerges. A large percentage (forty-three per cent) of the parents of the children in the Competency Program expressed dissatisfaction with their children's progress in reading and hand-writing skills (see Table 7.6). The parents of children in the Behaviourist Program appeared to express the greatest satisfaction about their children's progress in all areas, a finding which would be congruent with the objectives of this program for these curricular areas. Parents of children in the two programs which most emphasize children's direction of their own activities, the Cognitive and Contemporary, had the greatest dissatisfaction with their children's concentration and perseverance. It is, of course, not impossible to associate directly children's levels of concentration and task perseverance with child initiation of activities from the available data, but it is an area that merits further study.

When the parents were asked a number of specific questions about the programs' level of guidance, discipline, openness and care for their

Table 7.6 Parent's Perceptions of Programs (PAPP)—Parents' Perceptions of Programs (Frequencies)

Parents perceptions of programs		Program				
		H-b.	Behav.	Cont.	Comp.	Cog.
1 *Are* you happy about how your child is getting on at school?	not happy	6.3	0	0	35.7	10.0
	happy	37.5	9.1	25.0	21.4	35.0
	very happy	56.2	90.9	75.0	42.9	55.0
2 Is *your child happy* about school?	not happy	0	4.5	6.2	0	0
	happy	25.0	9.1	31.3	42.9	50.0
	very happy	75.0	86.4	62.5	57.1	50.0
3 Are you satisfied with how your child is progressing in these areas?						
(a) reading	dissatisfied	6.2	4.6	6.3	42.9	10.0
	satisfied	43.8	31.8	37.3	43.1	45.0
	very satisfied	50.0	63.6	56.4	0	45.0
(b) number	dissatisfied	6.3	4.5	6.2	0	15.0
	satisfied	56.4	27.3	43.8	78.6	40.0
	very satisfied	37.3	68.2	50.0	21.4	45.0
(c) writing	dissatisfied	18.8	9.1	12.4	42.9	15.0
	satisfied	56.2	36.4	43.8	42.9	65.0
	very satisfied	25.0	54.5	43.8	14.2	20.0
(d) creative skills/art, craft	dissatisfied	0	0	0	0	0
	satisfied	31.2	31.8	50.0	57.1	65.0
	very satisfied	68.8	68.2	50.0	42.9	35.0
(e) physical skills/co-ordination	dissatisfied	12.5	0	0	7.1	5.0
	satisfied	50.0	40.9	37.5	64.3	45.0
	very satisfied	37.5	59.1	62.5	28.6	50.0
(f) knowledge about the world/social studies/science	dissatisfied	12.5	4.5	0	14.3	10.0
	satisfied	50.0	68.2	62.5	57.1	65.0
	very satisfied	37.5	27.3	37.5	28.6	25.0
(g) concentration/perseverance	dissatisfied	12.5	13.2	43.8	14.3	35.0
	satisfied	75.0	45.9	18.8	50.0	45.0
	very satisfied	12.5	40.9	37.4	35.7	20.0
(h) co-operation with adults	dissatisfied	12.5	9.1	6.3	21.4	5.0
	satisfied	62.5	40.9	62.5	42.9	60.0
	very satisfied	25.0	50.0	31.2	35.7	35.0
(i) co-operation with other children	dissatisfied	12.5	4.5	12.5	21.4	0
	satisfied	62.5	54.5	56.3	35.7	50.0
	very satisfied	25.0	41.0	31.2	42.9	20.0

Table 7.6 *continued*

Parents perceptions of programs		Program				
		H-b.	Behav.	Cont.	Comp.	Cog.
4 *For your child* Are you satisfied with:						
(a) the amount of direction/ guidance	about right	0	0	0	21.4	5.0
	not enough	100.0	100.0	100.0	78.6	95.0
	too much	0	0	0	0	0
(b) openness/flexibility	about right	6.3	4.5	0	7.2	5.0
	not enough	93.7	95.5	81.2	57.1	75.0
	too much	0	0	18.8	35.7	20.0
(c) discipline	about right	6.2	13.6	12.5	21.4	15.0
	not enough	93.8	86.4	87.5	78.6	80.0
	too much	0	0	0	0	5.0
(d) care/understanding	about right	87.5	100.0	100.0	92.9	100.0
	not enough	12.5	0	0	7.1	0
	too much	0	0	0	0	0

children, quite contradictory results were recorded. Parents of children in all programs responded that there was not enough guidance and direction, but equally stated that there was insufficient openness and flexibility present. Likewise the majority claimed there was insufficient discipline present in the classes but that there were high levels of care and understanding. Whether these findings represented the failure of the programs to convey their intentions in effective ways or whether the responses reflected ambivalent value judgments by parents is not possible to discover.

On the whole, the data suggest that parents were satisfied with the programs though perhaps the Competency Program's practices did arouse disquiet with some parents, for reasons that the interviews did not clearly establish.

Parents as teachers of their own children In relation to parent's satisfaction with the emphasis of programs in terms on content and style, parents' own reactions were sought—did they actively set about teaching certain skills or behaviours, how did they go about it, and were they satisfied with the results?

The interviews attempted to discover the parents' perceptions of their own teaching practices within the home. The validity of such responses must always be called into question as the parents, when asked such questions, sometimes gave the idealized response to a question. It was virtually impossible with the available resources to

Table 7.7 Parent's Perceptions of Programs (PAPP)—Parents as Teachers of their own Children (Frequencies)

Parents as teachers of their own children		Program				
		Home-based	Behaviourist	Contemporary	Competency	Cognitive
1 Do you teach these things at home?						
(a) reading	not enough	37.5	22.7	28.8	35.7	20.0
	some	56.3	50.0	37.5	57.2	55.0
	a lot	6.2	27.3	33.7	7.1	25.0
(b) number	not enough	31.2	40.9	62.4	14.3	20.0
	some	56.3	45.5	18.8	71.4	75.0
	a lot	12.5	13.6	18.8	14.3	5.0
(c) writing	not enough	31.2	31.8	18.8	14.3	35.0
	some	43.8	63.6	50.0	64.3	40.0
	a lot	25.0	4.6	31.2	21.4	25.0
(d) creative skills/art, etc.	not enough	68.8	54.5	50.0	42.9	45.0
	some	25.0	36.4	37.5	42.9	35.0
	a lot	6.2	9.1	12.5	14.2	20.0
(e) physical skills/co-ordination	not enough	50.0	36.2	50.0	28.5	20.0
	some	18.8	40.9	25.0	28.6	30.0
	a lot	31.2	22.9	25.0	42.9	50.0
(f) knowledge about the world social studies/-science	not enough	50.0	22.7	18.8	14.2	25.0
	some	31.2	59.1	43.8	42.9	30.0
	a lot	18.8	18.2	37.4	42.9	45.0
(g) concentration perseverance	not enough	31.3	45.5	18.8	21.4	40.0
	some	62.5	45.5	62.4	50.0	45.0
	a lot	6.2	9.0	18.8	28.6	15.0
(h) co-operation with adults	not enough	35.4	22.9	25.0	14.2	10.0
	some	41.3	45.5	37.5	42.9	60.0
	a lot	23.3	31.6	37.5	42.9	30.0
(i) co-operation with other children	not enough	12.4	31.8	18.8	35.7	35.0
	some	43.8	50.0	43.8	28.6	30.0
	a lot	43.8	18.2	37.4	35.7	35.0
2 To teach your child do you use:						
(a) firm discipline?	not enough	31.2	36.4	25.0	28.6	25.0
	some	31.3	45.4	37.5	21.4	40.0
	a lot	37.5	18.1	37.5	50.0	35.0
(b) reasoning, discussion?	not enough	12.5	0	12.5	7.1	5.0
	some	25.0	40.9	31.3	50.0	45.0
	a lot	62.5	59.1	56.2	42.9	50.0
3 Does your child ask you to teach him/her?	not enough	43.8	4.5	25.2	21.4	25.0
	some	25.0	50.0	32.0	35.7	30.0
	a lot	31.2	45.4	42.8	42.9	45.0

determine whether or not the parents did accurately indicate their own behaviours. Table 7.7 summarizes the data collected for this section.

Parents of children in the Contemporary Program recorded the highest percentages of working at home with their children in specific curricular areas. The majority of parents claimed to have worked to some extent on the basic skill areas with their children. The data did not indicate the consistency or effectiveness of such efforts. It would be useful to follow up the school-related performances of children whose parents claimed to have worked a lot with their children and compare them with those of children whose parents who did not make such an effort, when the children are in higher year levels.

One surprising result from the interviews was the comparatively high percentage of parents who claimed to have either done 'some' or 'a lot' of work with their children in knowledge about the world, concentration, co-operation with adults and other children. Whether or not these activities were part of their child-rearing practices and were consequently carried out incidentally rather than in any systematic form is not known. Some, but not a majority of parents taught their children firm discipline in the home but the majority of parents did not rate the school's effectiveness in this area very highly (cf. Question 4, Table 7.6). Whether or not these parents viewed the disciplining of children as the school's role is not known.

Again the data suggest that the majority of parents did see themselves as having a role in the educative process, by teaching their children at home. Some, of course, believed that they did not do sufficient work with their children and wished their children would ask them for more help (cf. question 3, Table 7.7). Many parents saw their educative role as being more than helping their children with the basic school subjects, and claimed to have worked with their children in a number of affective as well as cognitive areas.

Summary of the PAPP Kindergarten data The Kindergarten PAPP data, though focusing on additional areas to the preschool PEPI, confirmed the overall perceptions of the parents about the four programs. For the most part, the parents were pleased with the effects of the programs. Most parents felt welcomed in the school and a large percentage took the opportunity to become involved. The different school pattern of Home-based parents' responses about their children's school, where no comprehensive program was continued, compared with the responses of parents of children in the four other programs, does reveal a more positive attitude to schools continuing the four programs. It shows only too clearly how the positive attitudes towards schooling revealed by the Home-based mothers in the PEPI data can be quickly diminished through failure to involve parents comprehensively in their schools.

Informal Parental Evaluation of Project Activities

To support the more informal evaluation described above, continuous informal evaluations of its activities took place over the life of the Project. For the most part these involved inviting parents to comment upon routine and non-routine activities. At first, asking parents their opinions about various events did not always evoke many meaningful comments, probably because they felt that their views would not be respected. However, as some of the parents realized that their presence in the classrooms was welcomed, and that they could determine the scope and focus of parental activities, their willingness to be more forthright in their comments increased. As one mother said, 'Once we realized you were fair dinkum in asking our opinions, that changed a lot'.

Teachers who came into continuous contact with parents soon received immediate feedback, both good and bad, about the parents' perceptions of classroom activities. At best this helped planning, and at worst made the teachers more reticent to take some parents at face value. As with any groups, cliques and pressure groups formed and sometimes it became necessary for the teachers to manoeuvre carefully between competing influences. The great advantage the teachers saw in this situation was that the views of the different groups, and the influences they wished to have on Project activities, were mostly in the open. Had there not been the ongoing contacts with parents, teachers would not have heard the variety of opinions that surfaced over the years.

Summary

The information and data presented in this chapter described the Project's activities in fostering school-community relationships. These activities were based on the belief that closer relationships between home and school could only be helpful for children, teachers and their parents. The potential values from such initiatives can be summarized as follows:

1 Children gain greater confidence and security from a better understanding between teachers and parents and may increase their skills in social, academic and creative spheres.

2 Parents can get first-hand knowledge and gain insight into child development and new teaching methods, enhance and widen their own interactional and parenting skills.

3 Teachers will be more aware of parental expectations and attitudes and will add to their knowledge of individual children. Moreover, the teachers will be able to ensure that their curricular activities are relevant to the local community.

Of all the Project goals the attainment of effective school-community relationships was the most difficult. There were many different groups to liaise with and to goad, cajole and persuade. Sometimes the initiatives were warmly welcomed, at other times overt or latent hostility would surface. Not all parents took advantage of the opportunities to become involved and, as the data show, a number were suspicious, uninterested or concerned about different developments. However, an openness always remained and it is believed that many positive and worthwhile initiatives were started, developed and maintained. On reflection, the Project's activities laid the foundations for effective school-community involvement. Its full development takes time, patience and effort by all and perhaps, if it is to be long-term, requires a longer period of time than the Project had.

8

Overall Results of the Study

Ultimately the intention behind the establishment of the Project in the Mt Druitt area was to affect children's development in beneficial ways. Earlier overseas and local studies have shown that attendance at sessional preschools has benefited disadvantaged children (see, for example, Clough, 1971; Miller and Dyer, 1975; Teasdale and Whitelaw, 1981; Weikart et al., 1978a). Yet a number of educators, parents and community pressure groups remain sceptical about the long- and short-term advantages of preschool education for this group of children. Moreover, some lobbyists claim that sessional preschool meets neither the educational needs of children nor the child-care needs of their parents. Clearly this evaluative study cannot provide data to resolve all of these issues. It can address some of those which are of immediate concern to educational and social policy-makers. These issues are necessarily concerned with the effects of the programs on this group of children over a three-year period. The questions that are addressed are:

1 Does enrolment in preschool programs improve disadvantaged children's school-related achievement?
2 Does continuity of programming over three years have a marked effect on children's performances?
3 Were there differential effects produced by the various programs?

To permit easier presentation of the findings, other issues such as unexpected outcomes, school attendance, and teachers' attitudes to the programs are treated in the next chapter.

It should be reiterated at this stage that the children's results on the measures used cannot be generalized to other populations of disadvantaged Australian school children. Apart from the statistical limitation caused by non-random assignment of treatment children to programs (see 'Analytic procedures for school achievement data', chapter 5), the contextual variables that affect Mt Druitt children are not always found in other settings.

A Short Recapitulation

A recapitulation of specific aspects of the evaluation model presented in chapter 5 may be useful at this point to assist an understanding of the analyses presented in this chapter.

In the preschool year, data were collected from the two major cohorts, the *experimental* groups comprising all children enrolled in the five preschool programs meeting the specified attendance criteria, and the *preschool comparison* group, who were children volunteered by their parents for the study and who had not attended and were not attending any preschool, day-care or family playgroup. The data presented in Table 5.10 indicated that there were no significant differences between the mean scores of the preschool and non-preschool groups on entry to preschool, except for the scores on the auditory perception test. It is believed that overall the two groups were comparable and could be said to have been drawn from the same population.

The intention behind the collection of data from the preschool comparison group was analogous to the establishment of a 'control' group for traditional research designs involving experimental and control groups. As later argued, the assumptions that we made concerning the comparative 'neutrality' of the comparison group were invalid. However, we continued to collect data from the preschool comparison group to honour our commitments to the parents and to provide another comparison group.

The Kindergarten and Year 1 cohorts had three analytic groups: the first were the *experimental* groups containing children who had enrolled in the preschool experimental programs, supplemented by a number of children who had not attended any preschool program. The second, comparison group A, contained all the preschool children who had previously been enrolled in the experimental preschool programs but who were now enrolled in non-experimental classes for the next two year levels. The third, comparison group B, was made up of non-preschool children who were not in the experimental groups. Staffing problems within some schools necessitated minor modifications to the Kindergarten class sizes in Year 1 but, apart from these small changes, the size of the experimental groups did not vary greatly over the two years. The variations in the numbers of children in the groups represented variations in the numbers of children about whom all data were available.

Only post-test results on the measures indicated in Table 5.5 were analysed (see 'Analytic procedures for school achievement data', chapter 5). The results are presented for two groups: the *total* group encompassing all the children in the study at each specific year level and the *core* group being a random sample, stratified by sex, drawn from the total group. Bartlett's test for homogeneity of variance indicates that most variances within the different analytic groups do not differ significantly among themselves. The exception was the preschool auditory perception pretest measure wherein variances were not homogeneous. This result was probably caused by the non-random assignment of children to groups and the comparatively higher mean performance, with limited variance, of the comparison group of children's performances on this measure.

Analyses were undertaken to compare the aggregated scores of the children enrolled in the various experimental and comparison groups meeting the attendance criteria. The size of these groups varied according to the analysis being reported. In most cases the post-test data are analysed by multivariate and/or univariate analyses of variance (cf. Clyde, 1969; Finn, 1978; Nie et al., 1975).

Does Enrolment in Preschool Programs Improve Disadvantaged Children's School-related Achievement?

To answer this question two perspectives are adopted. The first is a short-term one wherein the performances of all the children enrolled in the preschool programs are compared with the performances of non-preschool children in the comparison group. Results of previous studies (cf. Hodges and Spicker 1967; Karnes, 1969; Weikart, 1967) suggest that the mean performances of the experimental preschool group of children should be significantly higher than those of the comparison group. The second perspective, which gives a slightly longer view, compares the performances of the preschool children in Kindergarten and Year 1 classes with non-preschool children's performances in comparison Group B. The rationale for the second perspective is that the majority of the above studies reported a diminution in the superior performances of the preschool children compared with non-preschool children, as the groups progressed through the higher years.

Comparisons between Preschool and Non-preschool Children at the End of the Preschool Year

Appendix D and Table 8.1 report the means, standard deviations, analyses of variance and covariance for the experimental (preschool) and comparison groups for all post-test measures administered to both groups. Two main effects are presented in this table, preschool/non-

Table 8.1 Summary of Multivariate and Univariate Analyses of Variance and Covariance on Preschool Post-test Measures for Preschool and Non-preschool Groups

Post-test measures		F-value	p<
PSI, Visual Perception, Vocabulary			
Multivariate effects			
Preschool/Non-preschool/sex		1.65	ns
Preschool/Non-preschool		.02	ns
Sex		.92	ns
Univariate			
Preschool/Non-Preschool —	PSI	.00	ns
	Visual perception	.03	ns
	Vocabulary	.00	ns
Sex—	PSI	.06	ns
	Visual perception	.84	ns
	Vocabulary	.06	ns
Prereading			
Multivariate effects			
Preschool/Non-preschool/Sex		3.74	ns
Preschool/Non-preschool		1.44	ns
Sex		.30	ns
Auditory Perception			
Analysis of covariance			
Preschool/Non-preschool/Sex		.41	ns
Preschool/n-preschool		2.95	ns
Sex		.00	ns
Language—Syntax			
Multivariate effects			
Preschool/Non-preschool/Sex		.02	ns
Preschool/Non-preschool		.63	ns
Sex		.97	ns
Univariate			
PreschoolNon-preschool —	Imitation	1.06	ns
	Comprehension	.36	ns
	Production	.11	ns
Sex—	Imitation	.51	ns
	Comprehension	.34	ns
	Production	2.97	ns

ns = non-significant

preschool and sex differences, together with their interactions. It is necessary to recall that significance tests are used as heuristics since the basic assumption of random assignment to groups was violated. They do, however, indicate trends.

The short-term effects are examined first. Reference to Table 8.1 indicates that no measures have F-values that are significant at the 0.05

level. These results indicate that there are no significant differences between the group mean scores of the preschool children and the comparison group on the measures listed in Table 8.1. Similarly, there are no significant sex differences between the two groups on any measure. This first result conflicts with results presented in previous studies (see, for example, Miller and Dyer, 1975; Weikart et al., 1978a) and appears to negate the value of preschool education for disadvantaged children which was reported in these previous studies.

Apart from the obvious contradiction of this result with the findings from previous studies, it was a matter of concern that the efforts of teachers, parents and program assistants to provide quality educational programs for this particular group of disadvantaged children appear to have been comparatively ineffective. It was indeed a time of concern and provoked much self-evaluation. Without attempting to dismiss the results, a number of alternative explanations were investigated.

First, it could be argued that the group of children included in this study were not as disadvantaged as those in previous studies. For example, the children enrolled in the Ypsilanti Preschool Curriculum Demonstration Project (Weikart et al., 1978a) had *Stanford-Binet Intelligence Scale* scores which were substantially below average (80). Those children in Miller and Dyer's study (1975) had mean IQ scores on the same scale of approximately ninety-three, with the mean score of the control group being below ninety. While the children in the Mt Druitt study were not given intelligence tests, extrapolations based on group intelligence test scores given to older siblings in the same schools yielded mean IQ scores of 91. Thus, while the children did not appear on the extrapolated evidence to have intelligence test scores similar to those of the Ypsilanti children, they appeared to be equivalent to the IQ scores of the children in Miller and Dyer's study. Certainly, while some of the improvement in the Ypsilanti children's test scores could be attributed to the artifact of regression to the mean, this would not appear to be the case with the Mt Druitt sample. As an explanation for the findings, this argument is not very satisfactory.

Second, the reliability and validity of the measures can be called into question. Of the measures used to answer the question posed at the beginning of this section, only the *Preschool Inventory* (PSI) had been used previously in any evaluation studies. However, the reliability coefficients presented in Appendix C indicate that the scores are moderately to highly reliable. Further, the construct and content validity was confirmed by external authorities competent in the fields assessed by the different measures. Consequently, it is believed that the instruments are both reliable and valid measures of learner outcomes in the various areas.

Third, it is possible, nevertheless, that the style or administration of various measures may favour one group over others. Such a situation should reveal a systematic bias in favour of one particular group. However, reference to Appendix D shows that one group is not consistently superior to others on all measures, so the argument concerning systematic bias in test administration is rejected.

A fourth way of analysing the findings is to compare the results of the children on measures that are highly developmentally influenced (e.g. visual perception, and language—syntax-imitation, comprehension and production) with their results on those susceptible to direct influence by educational experience (e.g. PSI and language-vocabulary). Theoretically, it would be anticipated that there would be no differences between the mean scores of children in the preschool programs and of children in the comparison group on the developmental measures. Such measures would be assessing developmental influences which could be presupposed to have a general effect on all children. Further, it would be expected that the children in the preschool programs would do better on measures that are directly related to the experiences they undertake daily in the preschools. Analysis of the post-test results in Appendix D and Table 8.1 reveal that neither theoretical conjecture can be supported. Children in the preschool comparison group achieved comparable results, at the very least, to children in the preschool programs, on both the developmental and school-related measures. Hence, analysing the results on the basis of developmental and school-related measures did not shed any light on why the children in the comparison group achieved comparable results to children in the preschool programs.

A fifth explanation for findings can be sought in the nature of the children enrolled in the comparison group. Though the demographic characteristics presented in Table 2.2 revealed no significant differences between children in the experimental and control groups on the variables listed in those tables, it is suggested that the control group was a biased sample of local children, because of the self-selection procedures followed in recruiting children to this group. White (1973, 1978) has shown that many of the significant behaviours of competent child-rearing families are subtle and difficult to detail. Further, these behaviours interact in important ways and their isolation in tables describing potentially important variables fails to highlight the importance of their interaction. Moreover, as pointed out in chapter 5, it is believed that the regular interaction between the research assistants and the families in the comparison group instituted a *de facto* treatment group.

It may well be argued that the same conditions applied to the children in the preschool groups. However, while it is believed that a proportion of the families of the children in the preschool program were as competent as child-rearers as families in comparison Group A, the programs contained a higher proportion of families who would not be judged as competent child-rearers.

The probable bias in the sample of children in the preschool comparison group may in reality be the explanation for the finding in this study that the comparison group of children did as well as the experimental children on the measures of learner outcomes at the end of preschool. The dangers associated with using a control group in studies such as this one have been noted already. The sequence followed in the presentation of data in this chapter tends to overemphasize the importance of the end of the year preschool/comparison group data. While the order of presenting the results tends to lessen the impact of the subsequent comparison, it does accord with the sequence of data collection followed in the Project.

To test this explanation another investigation was initiated. All the children who had enrolled in Kindergarten classes in the five schools were divided into two groups. The first group comprised children who had attended the experimental classes. The second was made up of children who had not attended any preschool or day-care centres. This information is routinely obtained from parents by infant mistresses on enrolling the children in Kindergarten. While children being enrolled in Kindergarten classes are younger (their mean age is five years) than the legislated age of enrolment (six years), it is the practice for parents to commence their children's education in the Kindergarten classes.

From these two lists of children, a random sample comprising twelve children who attended preschool and twelve who did not was selected at each site. Appendix D sets out the numbers of children who completed all the tests for inclusion in these analyses. This group of non-preschool children had the same demographic characteristics as those detailed in Table 2.2.

Since it was essential to test the children as quickly as possible on entry to Kindergarten, before the children's performances were confounded by the effects of Kindergarten teaching, the time taken to administer many of the measures used at the preschool post-testing period precluded the administration of exactly the same battery of measures. Given the time restrictions, four measures from the areas of language, mathematics, pre-reading and general concept development were selected to be administered individually to both preschool and non-preschool groups. Two of the measures were administered to the preschool children at the end of their preschool year, namely the vocabulary and pre-reading measures. Obviously some practice effects

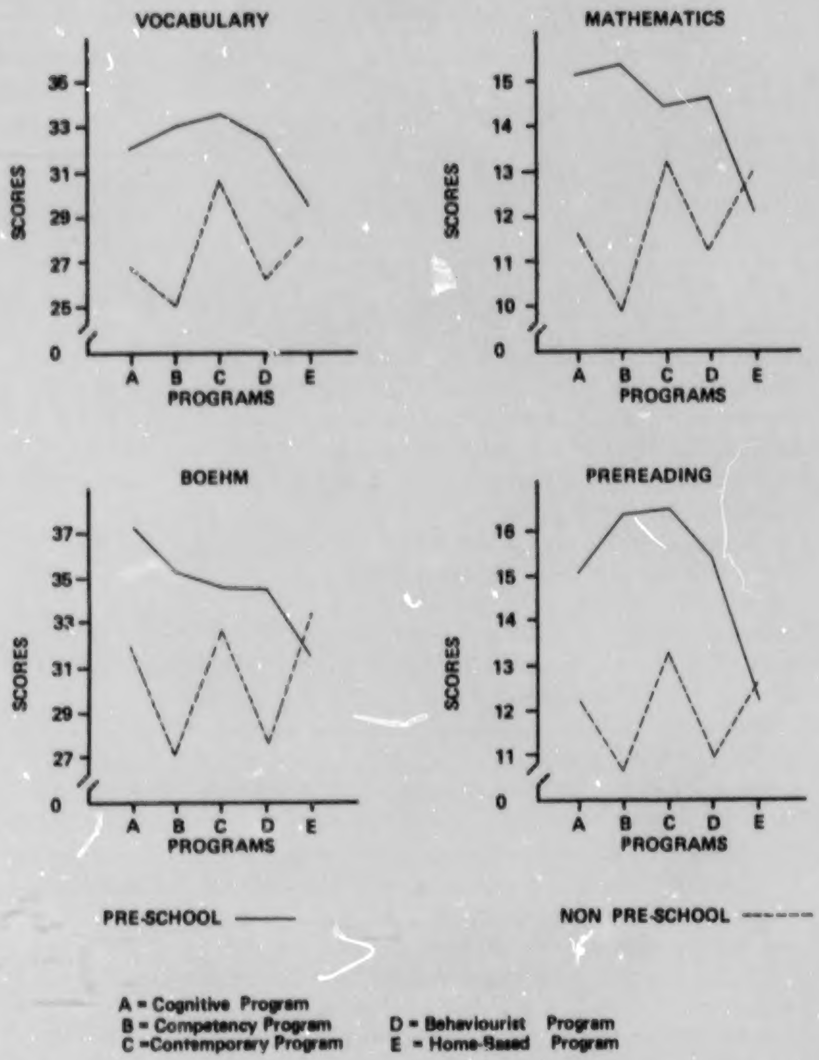


Figure 8.1. Mean Scores of Preschool and Non-preschool Children on Entry to Kindergarten, 1978

Table 8.2 Summary of Multivariate and Univariate Analyses of Variance between Preschool and Non-preschool Groups on Measures Administered on Entry to Kindergarten

		F-value	p<
Multivariate effects			
Programs/preschool/non-preschool		1.18	ns
Programs		.95	ns
Preschool/Non-preschool		7.39	.01
Univariate			
Preschool/Non-preschool —	Vocabulary	22.59	.01
	Mathematics	14.74	.01
	Boehm	15.47	.01
	Pre-reading	21.81	.01

ns = non-significant

on the vocabulary and pre-reading measures must affect the scores of children who had attended preschool, though they were given two and a half months apart. The mathematical measure and the Boehm test had not been previously administered to either group of children. The measures were administered according to procedures similar to those outlined in chapter 5.

The mean scores for the preschool and non-preschool groups on the three programs are shown in Figure 8.1. The data were analysed by multivariate analysis of variance (MANOVA) (Clyde, 1969). A summary of the multivariate significance tests associated with the interaction factors, program factors and the preschool/non-preschool factor, presented in Table 8.2.

The results in Table 8.2 indicate that the interaction factor was not significant for both roots, and the program factor has a similarly non-significant F-ratio. The overall F-ratio for the preschool/non-preschool group is highly significant ($p<0.01$) and the two groups differ significantly on the one orthogonal dimension. The results indicate that the preschool/non-preschool children differ significantly with respect to the set of four dependent variables, with the preschool group scoring significantly higher mean group scores than the non-preschool group.

The MANOVA program produces a set of discriminant function coefficients for each significant canonical variate from the analysis described above. These discriminant function coefficients are set out in Table D.4 in Appendix D. As can be seen from that table, the vocabulary and pre-reading measures make the greatest contribution to that discriminant function, with the mathematics measure contributing the least. Both the vocabulary and the pre-reading tests had been administered to the preschool children at the end of their preschool year and consequently some test-taking skills may have affected these results.

Interpreting the data produced by the MANOVA analysis of the 1978 Kindergarten testing suggests two fairly clear patterns. First, there are no significant differences among the group mean scores of the children in the five programs on these measures. Second, and perhaps more importantly, there are significant differences between the mean scores of the children who attended the five preschools and those who did not. Even allowing for the possible influence of practice effect generated by having the tests before and of any potential 'test-taking' prowess on the part of the preschool children, the results indicate that the preschool children performed significantly ($p < 0.01$) better than did the non-preschool children on these specific measures. One qualification that may be made to this result is that the size of the sample groups within each program was relatively small. However, the numbers involved in the preschool/non-preschool comparison were much larger ($N = 60/58$). *The children attending the preschool programs achieved higher mean scores on the four measures than children who did not.* This finding reflects the results of studies cited previously, wherein the preschool group of children also achieved higher mean scores than a comparable group of children who did not attend preschools.

To ensure that the results obtained were not spurious, the scores of the preschool children included in the supplementary analysis were compared with the two sets of scores of the comparison group children (vocabulary and pre-reading) on post-test measures at the end of preschool. There were no significant differences in the group mean scores of the preschool children and the comparison group on these two measures. This confirmed the similar findings reported in Table 8.1, and it suggests that the sample of preschool children chosen for the supplementary analyses were equivalent to the preschool experimental group on these two measures.

Such a finding supports the view expressed above that the preschool comparison group was not representative of the performance of children in the area who had not attended any preschool. It is suggested that this result may be explained by the self-selection bias of the preschool comparison group, wherein all mothers volunteered their children for the study. Moreover, the parents of the children in the comparison group may have been more competent child-raisers and this could have caused the differential results. The non-preschool children at the beginning of Kindergarten were not volunteered for inclusion in the study by their parents in the same way as the preschool comparison group, but were randomly selected from school lists of children who had not previously attended any preschool or day-care centre. Infant mistresses and teachers believed that this group of children were representative of the children in the area who had not attended preschool and certainly did not come from the homes of the more 'outgoing, competent and self-dependent' families found in the preschool comparison group.

While the data presented above comparing preschool and non-preschool children's performances yielded somewhat contradictory results at the end of the preschool year, the result comparing differences in performance between the two sexes is unequivocal. There were no significant differences in the mean performances of the two sexes (see Table 8.1).

In summary, there were no significant differences between the mean performances of the preschool and non-preschool groups on the measures administered at the end of the preschool year. Neither were there any significant differences between the sexes on these measures on this comparison. However, tests given to a supplementary group of non-preschool children at the beginning of Kindergarten revealed highly significant differences in the performances of the two groups. The group of preschool children performed significantly better than the non-preschool group on all measures.

Comparison between Ex-preschool and Non-preschool Children at the End of Kindergarten

With the transition of the preschool cohort to the different Kindergarten classes, several changes had to be made to the composition of the experimental groups. These organizational changes were caused by the need of the schools to meet state-wide class size requirements and the actions of the small number of parents enrolling their children in other neighbourhood schools within the Mt Druitt area. Analysis of the preschool results comparing the preschool children who were placed in the experimental classes in Kindergarten and the preschool children who enrolled in other schools revealed no significant differences between the two groups. Subsequent interviews confirmed that the parents had enrolled their children in other schools either to fulfil religious obligations or because the new school was geographically more convenient.

The new organizational arrangements in Kindergarten varied from school to school due to total numbers, but resulted in preschool children being placed in experimental and non-experimental classes. Figure 5.2 outlined the relative numbers in each of the respective groups.

Chapter 6 described the processes that were followed in the four centre-based programs and, as stated previously, it was neither legally nor administratively possible to continue the Home-based Program through into Kindergarten. Children enrolled in this program received varied inputs from the traditional Kindergarten classes but these were not sufficiently planned or regular to constitute a treatment effect in the same way that occurred in the four centre-based programs.

At the end of the Kindergarten year, all the children were individually tested on various measures following the previously established procedures. Because of curricular and developmental changes it was not always appropriate to use measures similar to those used in the preschools. As Table 5.5 indicated, measures assessing the same curricular areas were given to the Kindergarten classes together with the *Peabody Picture Vocabulary Test*. The *Boehm Test of Basic Concepts* was substituted for the *Preschool Inventory*, as the former's age norms covered a higher age range than did the latter.

The syntactical measures were not given to the Kindergarten children, as the results of the preschool assessment suggested that a qualitative analysis of children's vocabulary would prove more useful for teachers and curriculum development. Changes were also made to the mathematical measures. In addition to modifications being made to the conceptual mathematics items, an additional curriculum-based mathematics test was given to the children. To test reading ability, the *Murphy-Durell Reading Readiness Analysis* was administered. A Social Knowledge test, measuring children's general specific knowledge of their immediate social and physical environment, was also administered. Specific comments about the results of the qualitative analysis of the children's vocabulary and conceptual mathematics measures are incorporated into the text at appropriate places. The results of all the non-preschool children in each school were directly compared with those of the preschool children.

Appendix D presents the means and standard deviations for all the measures given at the end of Kindergarten, except for the conceptual mathematics scores. Multivariate and univariate analyses of variance calculated on this data set are presented in Table 8.3. Examination of Table 8.3 reveals that there is no significant interaction effect present. The overall F-ratio for the preschool/non-preschool group was highly significant ($p<0.01$) and the one for sex was significant at $p < 0.05$. The univariate analyses of variance reveal that the mean differences between the preschool and non-preschool groups on the Boehm ($p<0.01$), Murphy-Durrell pre-reading ($p<0.01$) and Circus Maths tests ($p<0.05$), were significant, as Figure 8.2 shows. The group mean scores of the preschool children were significantly higher on these measures than those of the non-preschool group. This significantly higher mean score for the preschool group compared with the non-preschool group on three of the five measures is in contrast with the results obtained at the

Table 8.3 Summary of Multivariate and Univariate Analyses of Variance on Kindergarten End-of-year Measures (Preschool and Non-preschool Groups)

		F-value	p<
Multivariate effects			
Preschool/Non-preschool/Sex		.55	ns
Preschool/Non-preschool		3.56	.01
Sex		2.28	.05
Univariate			
Preschool/Non-preschool —	Boehm	9.50	.01
	M-D pre-reading	7.44	.01
	PPVT	2.51	ns
	Circus Maths	5.66	.01
	Social Knowledge	.16	ns
Sex —	Boehm	.15	ns
	M-D pre-reading	.13	ns
	PPVT	5.18	.05
	Circus Maths	.95	ns
	Social Knowledge	.21	ns

ns = non-significant
Boehm = *Boehm Test of Basic Concepts*
M-D = *Murphy-Durrell Reading Readiness Analysis*
PPVT = *Peabody Picture Vocabulary Test*

end of the preschool year (see Comparisons between Preschool and Non-preschool Children at the End of Preschool in this chapter) and reinforces the differences found in favour of the preschool group in the supplementary analyses at the commencement of Kindergarten. The only significant difference for the sex effect was on the *Peabody Picture Vocabulary Test* where the group mean score of the boys was significantly higher than that of the girls ($p < 0.05$). From the mean scores shown in Appendix D it may be noted that the mean scores of the preschool and non-preschool boys were roughly comparable but that the preschool girls had higher mean scores than the non-preschool girls on three out of the five measures. Sex differences in the performance of the children were not found to be significant in earlier analyses reported.

Quantitative analysis of the Kindergarten children's performances on the conceptual mathematics test was undertaken. The instrument contained seven tasks—Representation and Memory, Matrix Reproduction and Transposition, Number Operations, Number Patterns, Conservation of Number, Measurement and Symmetry (Healey, 1980). The *core* group of children were tested individually on each of these seven tasks. The results of the conceptual mathematics tests showed that there were fairly consistent trends in favour of the preschool children, but that most of these did not reach the designated

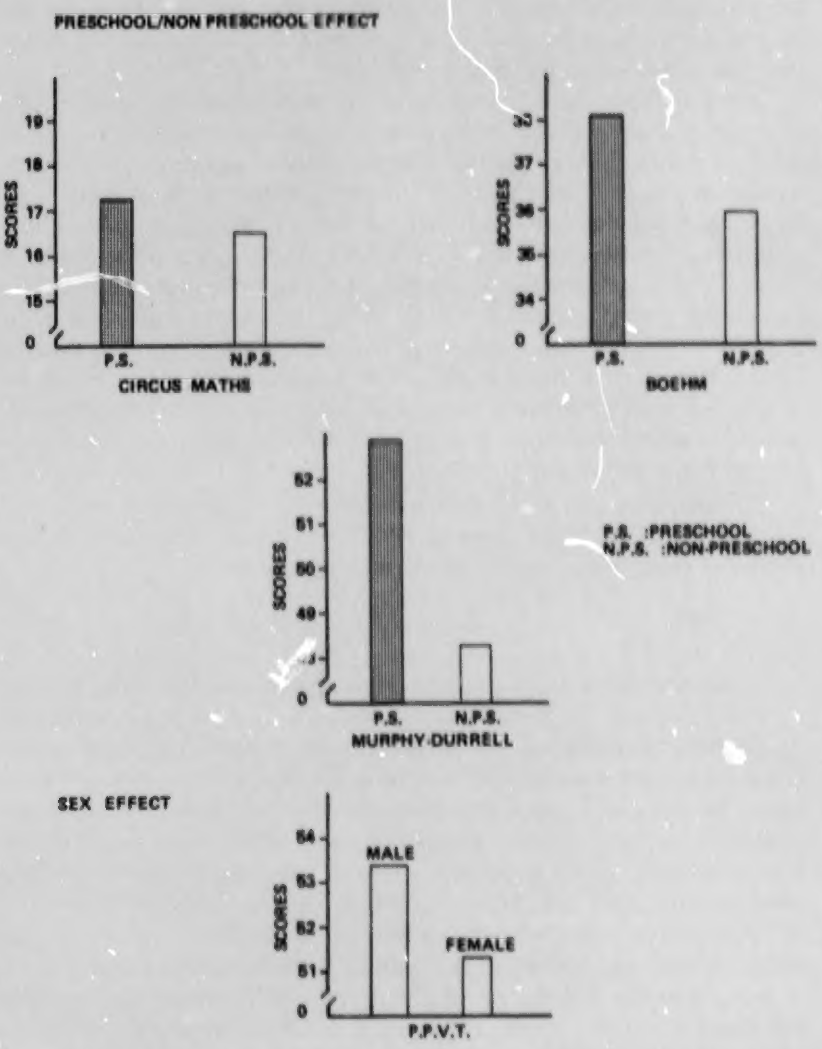


Figure 8.2 Significant Mean Scores of the Preschool and Non-preschool Children at the End of Kindergarten, 1978

significance level of $p<0.05$. The exceptions were responses to problems in Number Operations and Number Patterns. The differences were most clearly seen in three of the sub-tasks—remainder, simple number pattern *a* and number pattern *b*, which required the children to perceive repeated number patterns and to predict the next number in the sequence. Here the preschool children performed significantly better than the non-preschool group ($p < 0.01$).

Some of the comparisons made on the conceptual mathematics test indicated that sex differences were present. For instance, preschool boys were no better than non-preschool boys in the reconstruction of the matrix in two out of the four sub-tasks, but preschool girls were consistently superior to non-preschool girls on these sub-tasks. There were more 'conservers' among preschool than among non-preschool boys and both groups of girls, but there were no differences between the two groups of girls on these 'critical' tasks. It should be borne in mind that 'conservation' was scored as correct on the basis of correct judgment with or without explanation. Regardless of the presence or absence of such cognitive structures, it would seem from these results that early school experience is extended within the classroom in the case of girls more often than boys.

In summary, the above data indicate that the group of preschool children in this study performed significantly better on three of the five measures given at the end of the Kindergarten year.

Comparisons between Ex-preschool and Non-preschool Children at the End of Year 1

For comparisons between the preschool and non-preschool groups at the end of Year 1, the same analysis was made, i.e. the group scores of the children in the experimental classes were compared with the group scores of the children in Year 1 comparison Group B. Changes again had to be made to the measures administered to the children because of curricular changes and the inappropriateness of previous measures for Year 1 children. In addition, specific measures were added for spelling (now taught) and reading, the *Neale Analysis of Reading Ability* (accuracy and comprehension) being used for the latter. The Neale test was added as all children were formally taught to read in all Year 1 classes. Measures of children's ability to reproduce syntactically correct sentences were also included to help teachers diagnose particular weaknesses in children's grammar. No general measure of school achievement was given, as none suitable for this group of children could be found.

Appendix D presents the means and standard deviations on the measures administered at the end of Year 1 and Table 8.4 the multivariate and univariate analysis of variance performed on these

Table 8.4 Summary of Multivariate and Univariate Analyses of Variance on Year 1 End-of-Year Measures (Preschool and Non-preschool Groups)

			F-value	p<
Multivariate effects				
Preschool/Non-preschool/Sex			1.30	ns
Preschool/Non-preschool			.69	ns
Sex			5.95	.01
Univariate				
Preschool/Non-preschool —	Reading —	Accuracy	1.40	ns
		Comprehension	2.19	ns
	Language —	PPVT	.35	ns
		Spelling	2.28	ns
		Syntax	.34	ns
	Mathematics		3.49	ns
	Social knowledge		.92	ns
Sex —	Reading —	Accuracy	8.55	.01
		Comprehension	2.40	ns
	Language —	PPVT	4.43	.05
		Spelling	9.53	.01
		Syntax	.01	ns
	Mathematics		.56	ns
	Social Knowledge		10.29	.01

ns = non-significant
PPVT = *Peabody Picture Vocabulary Test*

measures. The data in Table 8.4 show that there were no significant interaction effects. When the comparisons between the preschool/non-preschool groups were analysed using univariate analysis of variance, there were no significant differences between the two groups, as shown in Table 8.4. This result confirms those of previous studies. For example, Miller and Dyer (1975) reported a steady decline by ex-preschool children in measures of cognitive areas three years after the preschool years. However, as no intelligence test was administered to the children, comparison cannot be made with studies such as that of Weikart et al. (1978a) which reported that the initial gains in IQ favouring the preschool group were maintained over four years.

If Table 8.4 reported no significant differences between the preschool/non-preschool groups, it indicated highly significant differences between the sexes on four out of the seven measures. These differences are highlighted in Figure 8.3. Boys had significantly higher mean scores on the PPVT and Social Knowledge tests than girls, while the girls had significantly higher mean scores on spelling and reading—accuracy tests. This result replicates Stanchfield's (1970)

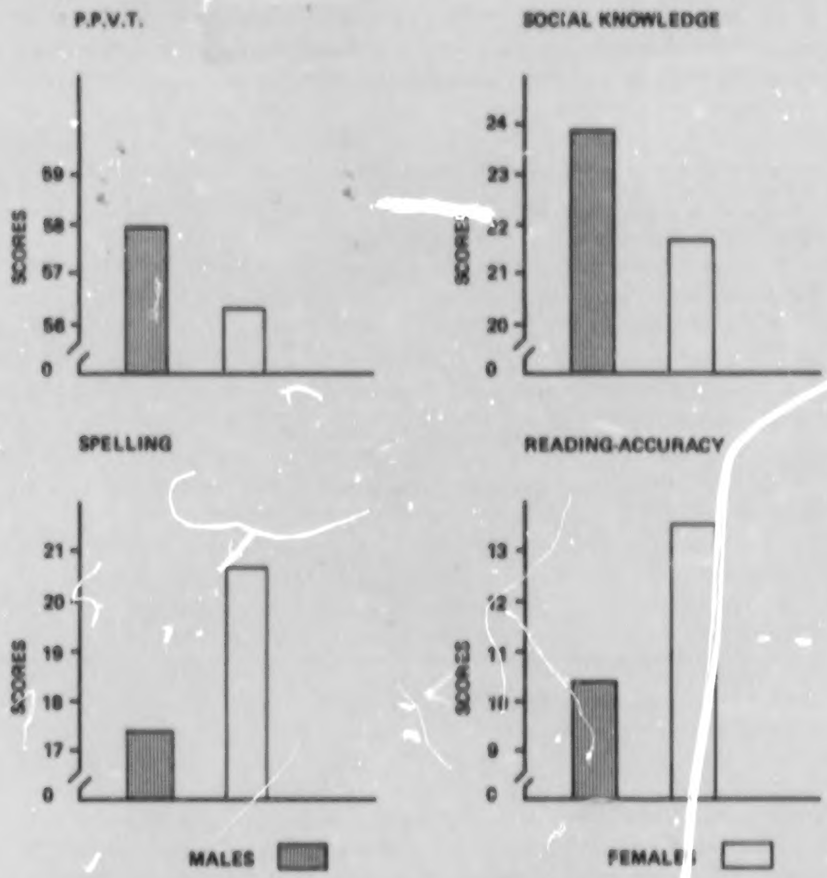


Figure 8.3 **Significant Mean Scores between Males/Females at the End of Year 1**

findings, confirming the superior performance of girls on reading tests at this year level. Further, the apparently superior performances of the preschool girls to the non-preschool girls reported at the end of Kindergarten was maintained at the end of Year 1 on all of the measures (see Appendix D).

Conceptual mathematics problems were again administered to the Year 1 children, with the tasks having a strong spatial component. The topics covered by the problems were the sequencing of time routines, spatial arrangement and number, displacement of form, creation of new forms to obey a rule, translation from three to two dimensions in space and use of the 'equals' sign. While no significant sex differences were found, the preschool group tended to perform significantly better than the non-preschool group on a number of the spatial tasks ($p < 0.05$) and when error styles were analysed, preschoolers made less errors of any kind in the first task ($p < 0.05$) (Healey, 1981). This finding suggests that the preschool group were still performing significantly better on some conceptual mathematical tasks. Perhaps it is in such areas, that are not traditionally assessed or do not readily lend themselves to assessment, that real and significant differences between the preschool and non-preschool groups may be found.

Reflecting on the results it does appear, if the argument about the biased preschool comparison group is accepted, that preschool education gave considerable advantages to the children enrolled in the five programs on the measures used in this study. In terms of helping children to acquire basic concepts, vocabulary, and specific knowledge related to school achievement, enrolment in the programs was beneficial for this group of children. If providing disadvantaged children with extra assistance is advocated as a means of helping them to adapt to the immediate learning environment of schools, then the evidence presented above for this group of children would support such a viewpoint. However, this initial superiority dissipated over the succeeding years, as the non-preschool children performed as well as the others on all the measures at the end of Year 1. The question that needs now to be considered is how far up the educational ladder can we expect preschool effects to be felt? Clearly there are contradictory answers to this question. Some would claim that the overwhelming environment of the school wears children down and brings them all to the same level unless corresponding changes in attitudes and curricula are made. Others believe that the real benefits lie in the affective domain and that it is the non-cognitive effects which are carried over longest (Miller and Dyer, 1975). Certainly one area that is worth investigating in future studies is that of the differences found in non-traditional measures such as the conceptual mathematics measures used in this study. This is an issue that has already been highlighted by other writers (cf. Weikart et al., 1978b). It is not possible from the presentation of the data in this study to determine whether the affective and non-traditional measurement areas maintain significant differences in favour of the preschool children three years later.

Does Continuity of Programming over Three Years have a Marked Effect on Children's Performances?

When early findings were published in the 1960s showing that preschool programs did not significantly assist disadvantaged children, one of the many defensive arguments that were advanced by the supporters of programs such as Head Start was that it was essential to have program continuity over a number of years in order to overcome the relative disadvantage of the programs' participants. Clearly, continuity of methods, sequencing of curricula, resource availability, training procedures instituted for teachers, aides, and parents are but some of the variables which have ultimate impact upon the effectiveness of programs for disadvantaged children. To determine which variable or combination of variables has the greatest effect on the delivery of educational programs over a three-year period is in reality an almost impossible task. School systems, teachers and parents are not likely to agree to the withholding of any one of the important variables in the educational process just to satisfy academic investigation. They 'know' that these variables do affect the quality of educational programming and are not willing to delete any one from their school organization. Therefore, if any evidence is to be presented about the effects of program continuity, it has to be obtained in other ways.

Within schools there are many environmental variables that have been shown to affect children's school-related performances (cf. Brookover et al., 1979; Epstein, 1981). The more control that can be placed over these variables, the greater the likelihood of determining what effects programmatic treatments have on children. In answering this question, obviously what teachers do with children in their constant encounters will affect children's learning in a variety of ways (cf. Rutter et al., 1979). PROSE data confirmed that the classroom practices showed high fidelity with the intended objectives of each program, and supported the view that the continuity in planning was indeed implemented by the teachers. While planned and unplanned experiences occurred in experimental and non-experimental groups within each school, the immediate contextual variables were similar. Hence a comparison between the performances of preschool children enrolled in the experimental groups with preschool children enrolled in non-experimental classes should enable the question of the continuity of programming to be addressed. These comparisons are based on post-test results at the end of Kindergarten and Year 1. A secondary analysis is also presented wherein preschoolers' and non-preschoolers' performances within the same experimental classes are compared at the same points in time.

First, the comparison between the two preschool groups (one in the experimental classes and the other in the comparison classes) is presented. Appendix D presents the means and standard deviations of the measures administered to the total group on these two occasions and Table 8.5 presents the multivariate and univariate analyses based on these results.

Table 8.5 Summary of Multivariate and Univariate Analyses of Variance—Kindergarten and Year 1 Comparisons between Preschool Children enrolled in Experimental and Comparison Groups

		F-value	p<
Multivariate effects			
Kindergarten			
Experimental/Comparison/Sex		.24	ns
Experimental/Comparison		1.94	ns
Sex		1.39	ns
Year 1			
Experimental/Comparison/Sex		.94	ns
Experimental/Comparison		2.54	.05
Sex		4.30	.01
Univariate			
Kindergarten			
Experimental/Comparison —	Boehm	7.14	.01
	PPVT	.05	ns
	M-D Reading	3.53	ns
	Circus Maths	1.61	ns
	Social Knowledge	3.39	ns
Sex—	Boehm	1.17	ns
	PPVT	1.62	ns
	M-D Pre-reading	1.31	ns
	Circus Maths	.05	ns
	Social Knowledge	.02	ns
Year 1			
Experimental/Comparison—	PPVT	5.62	.05
	Spelling	2.03	ns
	Circus Maths	.00	ns
	Reading—Accuracy	4.58	.05
	—Comprehension	1.01	ns
	Syntax	2.49	ns
	Social knowledge	.73	ns
Sex —	PPVT	1.47	ns
	Spelling	11.49	.01
	Circus Maths	.58	ns
	Reading —Accuracy	14.00	.01
	—Comprehension	8.35	.01
	Syntax	.49	ns
	Social Knowledge	2.59	ns

ns = non-significant

As can be noted in Table 8.5, the F-values for the interactive effects do not reach significance at $p<0.05$ level of confidence. Examination of the univariate analysis indicates that preschoolers in the experimental classes at the end of Kindergarten achieved a significantly higher mean score on one measure, the *Boehm Test of Basic Concepts* ($p<0.01$). On two other measures the F-value of preschool children's scores approached the 0.05 level of significance—the Murphy-Durrell pre-reading inventory ($p<0.06$) and Social Knowledge ($p<0.07$). At the end of Year 1 the preschool children in the experimental group achieved significantly higher mean scores on the *Peabody Picture Vocabulary Test* ($p<0.05$) while the preschoolers in the comparison classes achieved significantly higher mean scores on the *Neale Analysis of Reading Ability* (Accuracy) ($p<0.05$). Some caution should be taken in the interpretation of these results as the distribution of preschoolers in comparison classes was not uniform, with the Cognitive and Behaviourist Programs having the largest numbers of preschoolers in comparison classes.

Table 8.5 presents the sex differences for the two groups included in this analysis. It can be seen that there were no significant sex differences on any of the Kindergarten measures, but that some highly significant differences were found at the end of Year 1. The girls' mean scores were significantly higher on Spelling ($p<0.01$), Reading-Accuracy ($p<0.01$) and Reading-Comprehension ($p<0.01$). Further the ex-preschool girls had higher mean scores than the non-preschool girls on two of the five measures. Why such results should become apparent at this time is not quite clear, but such findings parallel those obtained in studies cited earlier in this chapter. Examination of the group mean scores in Appendix D shows that this result was quite marked in both experimental and comparison classes. Many reasons can be advanced for such a result, ranging from the fact that only female teachers are found in the infant schools, to the comparatively slower maturational development of boys.

Such results suggest that continuity of programming affects children's performances only on general measures such as the Boehm and the PPVT. It does not appear that the curriculum-related measures revealed any marked differences from continuity of programming when the two preschool groups' performances are compared. It could be argued that the initial benefits obtained by preschool enrolment are not curriculum-related but are more general in nature and that this 'generality' benefits children irrespective of which program they follow.

The teachers, however, commented subjectively on the way in which continuity facilitated class organization and their own programming, factors which were not assessed by the children's measures. They further argued that the overall planning allowed them to incorporate a wider range of experiences into their planning. Obviously the question is not resolved by the above data as further investigation of teachers' planning and children's range of experiences would be pertinent variables worth examining in future studies.

Another way in which the effects of the continuity of programming on the preschool children could be determined is to compare the mean scores of the preschool group in the experimental classes with non-preschool children in the same classes. Such a comparison allows the possibly confounding variables of teachers' abilities, time allocations and resource utilization to be controlled more carefully. Teachers did not differentiate between preschool and non-preschool children in their planning and activities. It would be possible to argue that, if continuity of planning is going to have any marked effect on children's performances, it should improve or at least maintain the relative position of preschool children's performances vis-à-vis non-preschool children's performances. In this situation, the supplementary analysis showed that the preschool children's performances were superior to the non-preschool children's at the beginning of Kindergarten. Examination of the performances of both groups of children at the end of Kindergarten and Year 1 may be made by considering the data presented in Table 8.6 and Appendix D.

The data in Table 8.6 and Appendix D confirm the significantly higher mean scores of the preschool children compared with the non-preschool children on four of the five measures at the end of Kindergarten. No significant differences between the sexes were found at this stage, though there was a trend for the ex-preschool girls to have higher mean scores than the non-preschool girls. Such results confirm the superior performances of the preschool children in all the areas assessed at the beginning of Kindergarten, namely vocabulary, pre-reading, general concepts and mathematics. Whether continuity of programming affected the preschool children's performances, or whether they were maintaining the advantage shown by their preschool attendance, is difficult to determine. Certainly the highly significant mean differences between the two groups were maintained. The most likely explanation is that there is an interactive effect between initial performances at the beginning of Kindergarten and curriculum continuity.

However, when the data for the end of Year 1 shown in Table 8.6 are examined, a different picture emerges. Only one measure, PPVT shows a significant F-value ($p < 0.05$) wherein the preschool children obtained a higher mean score than the non-preschool children. The initial advantages obtained by the preschool group has dissipated and the continuity of programming has not maintained that initial difference in

Table 8.6 Summary of Multivariate and Univariate Analyses of Variance—Kindergarten and Year 1 Comparisons between Preschool and Non-preschool Children enrolled in Experimental Classes

		F-value	p<
Multivariate effects			
Kindergarten			
Preschool/Non-preschool/Sex		.60	ns
Preschool/Non-preschool		4.82	.01
Sex		1.12	ns
Year 1			
Preschool/Non-preschool/Sex		.74	ns
Preschool/Non-preschool		1.11	ns
[illegible]		2.34	.01
[illegible]			
K[illegible]			
[illegible]/Non-preschool	— Boehm	15.06	.01
	PPVT	14.62	.01
	M-D Pre-reading	11.42	.01
	Circus Maths	6.94	.01
	Social knowledge	3.41	ns
Sex	— Boehm	.02	ns
	PPVT	3.25	ns
	M-D Pre-reading	.25	ns
	Circus Maths	.19	ns
	Social Knowledge	.11	ns
Year 1			
Preschool/Non-preschool	— PPVT	4.81	.05
	Spelling	.83	ns
	Circus Maths	1.31	ns
	Reading —Accuracy	.13	ns
	Comprehension	1.60	ns
	Syntax	1.21	ns
	Social Knowledge	3.69	ns
Sex	— PPVT	.12	ns
	Spelling	4.82	.05
	Circus Maths	.23	ns
	Reading —Accuracy	6.94	.01
	Comprehension	2.26	ns
	Syntax	.07	ns
	Social Knowledge	6.19	.05

ns = non-significant

favour of the preschool children. It is likely that the other variables affecting children's school-related performances override [illegible] advantages, and that continuity of programming al[illegible] compensate for the interactive effects generated by these [illegible] and home variables (cf. Brookover et al., 1979). A previous com[illegible] the superior performance of the ex-preschool girls to the non-preschool girls is still valid, as the former had higher mean scores on five of the seven measures.

So, the above analyses provide tentative support for the benefit of continuity of programming through Kindergarten but indicate that by the end of Year 1 the superiority of preschool children's performances is only maintained in a few measures. Both analyses confirmed this finding.

Were there any Differential Effects produced by the Various Programs?

Given the different theoretical bases, objectives and teacher/learner experiences of the various programs, it might be expected that differences in learning outcomes would eventuate. For example, it could be hypothesized that the Behaviourist Program's children, because of the emphasis which that program placed upon the acquisition of basic skills, would achieve higher group mean scores on tests of basic skills than children in other programs. Similarly, it could be argued that children in the Cognitive Program should achieve higher scores on tests measuring the development of cognitive processes. Surprisingly, the evidence to date yields contradictory findings in this regard. The studies of Miller and Dyer (1975), Research Triangle Institute (1972), Smith (1973), and Weikart et al. (1978b) did not indicate large variations in the group mean scores on the dependent measures among all of the programs evaluated in the studies. Yet the evaluation of Follow Through by Abt Associates (see Stebbins et al., 1977) showed that some programs produced significantly higher mean scores on tests of basic skills, than did others. Clearly the research findings are equivocal, confounded no doubt by the objectives, techniques and measures used in the evaluation studies.

Preschool Data

Appendix D shows the means and standard deviations of the results of children in the various programs at the end of the preschool year. Table 8.7 presents the multivariate and univariate summary analyses performed on the preschool data of the various programs. No significant differences among the two sessional groups (a.m./p.m.) were found on any preschool post-test measures.

Examination of the preschool data on all the post-test measures

Table 8.7 Summary of Multivariate and Univariate Analyses of Variance on Preschool Results among Different Programs (Experimental Groups)

		F-value	p<
Multivariate effects			
Vocabulary, Visual Perception, PSI			
Program/Sex		.97	ns
Program		6.58	.01
Sex		1.62	ns
Language—Syntax			
Program/Sex		.89	ns
Program		1.78	.05
Sex		.87	ns
Mathematics (Conceptual)			
Program/Sex		1.33	ns
Program		1.75	.01
Sex		1.58	ns
Univariate			
Program	— Vocabulary	7.55	.01
	Visual Perception	10.16	.01
	PSI	.20	ns
Sex	— Vocabulary	4.10	.01
	Visual Perception	5.04	.01
	PSI	1.33	ns
Syntax			
Program	— Imitation	2.42	ns
	Comprehension	2.79	.05
	Production	.71	ns
Sex	— Imitation	.51	ns
	Comprehension	.34	ns
	Production	2.96	ns
Mathematics (Conceptual)			
Program	— Seriation I	1.00	ns
	Seriation II	2.75	.05
	Seriation III	2.13	ns
	Numeration I	.87	ns
	Numeration II	.33	ns
	Numeration III	.89	ns
	Conservation	1.24	ns
	Spatial	1.20	ns
Pre-reading			
Program		.12	ns
Sex		2.19	ns
Auditory perception (Covariance)			
Program		.42	ns
Sex		.04	ns

ns = non-significant

reveals that there were significant differences among the mean scores on visual perception, language-vocabulary, and syntax (comprehension) and the second seriation sub-test on the conceptual mathematics measure.

Language is one area that previous studies have suggested will be affected by the introduction of lessons. Such studies stress the effect of lessons on language acquisition and vocabulary extension (cf. Blank and Solomon, 1968; Karnes, 1969). The PROSE data presented in chapter 6 revealed that in all centre-based programs a large percentage of the overall interactions were verbal and verbal/material interactions. Consequently the finding that there were significant differences in the mean scores in one vocabulary and syntactical measure is not surprising.

On the vocabulary measure, Scheffé *a posteriori* tests revealed that children in the Behaviourist and Competency Programs achieved significantly higher mean scores than did children in the Cognitive and Contemporary Programs. The higher mean scores of the children in the first two programs may reflect the percentage of directed learning experiences in language, involving categorizing or naming activities by the teachers in the small-group activities in both programs. Certainly, the types of skills introduced in these small group lessons were directly related to the style and method of assessing vocabulary knowledge used in the study. It may well be also that the vocabulary measure is reflecting practice effects generated by these directed activities as much as recording differential effects among the programs.

The results of the analyses of variance on the syntactical measures indicate that significant mean group differences were reported on the comprehension task ($p<0.05$). Children in the Cognitive Program achieved significantly higher group mean scores than did children in the Home-based Program. In the comprehension task children were required to point to the picture that matched a given sequence from an array of four line drawings. The Cognitive Program, with its emphasis upon the development of representation skills, possibly transferred these skills to the comprehension task.

The children in the study showed a command of basic English structures commensurate with the language development of young children aged between four and five years. Most of the children appeared to develop the basic structural responses. However, the research does show that it is in the areas of variety of language use and range of cognitive functions, that disadvantaged children show comparative losses (cf. Tough, 1977). A supplementary investigation of syntactic complexity in the areas of mean length of utterance and indices of noun and verb complexity revealed no significant differences among the programs in this area, but as no comparable data were collected on non-disadvantaged children, it is not possible to verify Tough's argument on these data.

Another finding of interest relates to the significant group mean scores on the visual perception measure. Children in the Competency, Contemporary, Behaviourist and Home-based Programs obtained significantly higher mean scores than the children in the Cognitive Program (Scheffé tests). While many studies have shown that visual perceptual abilities are developmentally influenced (cf. Gibson, 1969) it appears that practices introduced in the other four programs had greater impact upon children's visual perceptual development than did any element of the Cognitive Program. It is interesting that the children in the Home-based Program achieved similar group mean scores to children in three of the centre-based programs. Analysis of the teaching diaries of the Home-based teachers revealed that they introduced a large number of activities that could be classified as visual discrimination lessons, many of which were repeated by parents. This result would suggest that, if teachers believe that visual perceptual skills are a worthwhile and developmentally appropriate goal for preschool programs, devoting extra lessons to the development of these skills will be likely to increase or improve the preschool children's skills in this area.

The MANOVA results on the conceptual mathematics measures shown in Table 8.7 showed no significant interactions for program x sex effects, but did show a significant F-ratio for the first root of program effects. There were significant differences among the mean scores ($p < 0.05$) on 'Seriation Task 2' which required the children to determine differences in height between two families of wooden dolls. Scheffé *a posteriori* contrast tests indicated that the mean scores of the children in the Contemporary Program were significantly lower than the mean scores of the children in the four other programs. This result was the only significant result obtained on the conceptual mathematics measures, suggesting little variation among the children's results on this measure.

Developmental influences obviously affect children's performances, and it appears likely that, unless programs provide specific training on such tasks, developmental influences will contribute more to the successful completion of the tasks than programmatic influences, though such a claim is still the centre of continuing debate.

Whereas no significant sex differences were found when the post-test preschool data were analysed for the preschool/non-preschool comparison (see Table 8.1), significant sex differences were found on two measures when the comparisons among the five different programs were made. The two measures on which significant F-values were found were the Vocabulary and Visual Perception tests. No two groups were significantly different on the Vocabulary measure but the girls in the Home-based Program scored significantly higher mean group scores than all the children in the Cognitive Program. This latter result is difficult to account for when the teaching practices in the Home-based Program were analysed and compared with those of the Cognitive Program. Yet such a result tends to support Deutsch's claim (1967) that girls are likely to out-perform boys when both sexes come from the same disadvantaged background. Whether or not the sex differences on the Vocabulary measure reflect differences that are engendered by developmental influences or teaching practices is difficult to determine. It may well be that factors such as teacher disapproval will contribute to sex differences in achievement (cf. Meyer and Thomson, 1956), but the PROSE data did not reveal any significant sex differences in the distribution of teacher disapprovals.

To summarize the data, there were some significant differences among the programs on the mean scores in visual perception, language-vocabulary, and one syntactical measure and one mathematics task. Sex differences in achievement among the programs were found only in two measures—Vocabulary and Visual Perception.

Kindergarten Data

The preschool children who continued in the experimental Kindergarten classes were joined by varying numbers of non-preschool children who for administrative reasons were enrolled in the experimental classes. The Home-based Program was not continued in Kindergarten and so the subsequent analyses involve only the four centre-based programs.

Table 8.8 presents the multivariate and univariate analyses of variance on the Kindergarten results. It can be seen from this table that highly significant differences are reported on two measures, the Murphy-Durrell pre-reading Test ($p<0.01$) and the *Peabody Picture Vocabulary Test* ($p<0.01$). The mean group scores of the children in the Contemporary Program were significantly higher than the group scores of the children in the three other programs on the Murphy-Durrell pre-reading test (Scheffé *a posteriori* tests). This result is quite a reversal to the relative, though non-significant, order of programs on the preschool pre-reading measure. On the *Peabody Picture Vocabulary Test* the mean group scores of the children in the Contemporary Program were significantly higher than the mean group scores of children in the Competency Program. The similar finding for both the Murphy-Durrell and the Peabody is not unexpected as the two measures had a correlation coefficient of $r = 0.78$.

On the conceptual mathematics tasks, there were few program differences. The most significant difference was found in the measurement sub-tasks, particularly in those associated with the tower

Table 8.8 Summary of Multivariate and Univariate Analyses of Variance on Kindergarten Results among Different Programs (Experimental Groups)

		F-value	p<
Multivariate effects			
Program/Sex		1.45	ns
Program		3.36	.01
Sex		1.09	ns
Univariate			
Program	— Boehm	1.95	ns
	PPVT	5.93	.01
	M-D Pre-reading	12.19	.01
	Circus Maths	1.66	ns
	Social Knowledge	2.07	ns
Sex	— Boehm	.02	ns
	PPVT	3.37	ns
	M-D Pre-reading	.29	ns
	Circus Maths	.19	ns
	Social Knowledge	.11	ns

ns = non-significant

variables ($p<0.01$). Inspection of the means score indicated that the Behaviourist Program's children had the lowest mean scores and a greater mean number of trials and moves. Children in the Behaviourist and Contemporary Programs took longer to reach solutions on this task but the children in the Behaviourist Program were wrong in their solutions most often while the children from the Contemporary Program were correct most often (Healey, 1980). It may be that instructional methods increase or decrease the likelihood of certain strategies being used. The program that encouraged individual interest and effort, the Contemporary, may have been wasteful of time in new situations, but successful in outcomes.

Reference to Table 8.8 reveals that no significant sex differences were found among the mean group scores on any of the Kindergarten measures across the four programs. This finding contrasts with the preschool comparison where sex differences were found on two measures.

In summary, the data indicate that there were differences among the programs on two of the measures and on some of the conceptual mathematics measures. Differences were found in the group mean scores on PPVT and on the pre-reading measure, unlike the non-significant difference found on a similar measure administered at the end of preschool.

Table 8.9 Summary of Multivariate and Univariate Analyses of Variance on Year 1 Results among Different Programs (Experimental Groups)

		F-value	p<
Multivariate effects			
Program/Sex		1.41	ns
Program		3.07	.01
Sex		3.48	.01
Univariate			
Program	Reading — Accuracy	3.79	.01
	Comprehension	4.66	.01
	Mathematics	1.36	ns
	Language — PPVT	.08	ns
	Spelling	4.8	.01
	Syntax	.72	ns
	Social Knowledge	2.07	ns
Sex	Reading — Accuracy	7.75	.01
	Comprehension	2.53	ns
	Mathematics	.23	ns
	Language — PPVT	.12	ns
	Spelling	5.46	.05
	Syntax	.08	ns
	Social Knowledge	6.37	.01

ns = non-significant

Year 1 Data

If the programs were consistently implemented with high fidelity to their intended objectives and teaching/learning strategies, it could be hypothesized that differences among programs should be maximized the longer the programs were implemented. The data that enable this hypothesis to be examined in this study are the Year 1 data. At the time of testing, the preschool children in the experimental classes had been in such classes for three years and the non-preschool children for two years.

Table 8.9 details the analyses of variance on the Year 1 measures, comparing the performances of the children in the four programs on various measures. From this table it can be noted that significant F-values were recorded on three of the seven measures: Reading-Accuracy ($p<0.01$), and Reading-Comprehension ($p<0.01$) and Spelling ($p<0.01$).

On Reading-Accuracy the group score of the children in the Behaviourist Program was significantly higher than the mean group score of the children in the Cognitive Program (Scheffé *a posteriori* tests). The group mean scores of the children in the Behaviourist and Contemporary Programs on the Reading-Comprehension measure were significantly higher than the mean group score of the children in the Cognitive Program. On the Spelling measure the children in the Behaviourist Program had significantly higher mean group scores than the group scores of the children in the Cognitive and Contemporary Programs. Overall, in these three results, the group mean scores of the Behaviourist Program suggested that the emphasis placed by this program on 'basic skills' was to some extent reflected in the results that were obtained. It is worth nothing that these differences were obtained on language measures that inter-correlated highly, yet no significant differences were found among the group scores on the PPVT. Programmatic influences can be advanced as one possible cause for such a clean differentiation of results on vocabulary measures among the programs at the end of the two previous years.

In this comparison, significant sex differences were found on Reading-Accuracy ($p<0.01$), Spelling ($p<0.05$) and Social Knowledge ($p<0.01$). On the Spelling measure the girls in the Contemporary Program scored significantly higher group mean scores than the boys in the same program and boys in the Cognitive Program ($p<0.05$). The same girls scored significantly higher group mean scores on the Reading-Accuracy measure than the boys in the Cognitive and Contemporary Programs. No groups were significantly different at the $p<0.05$ level of significance on the Social Knowledge measure.

The evidence that there were significant differences in the group mean scores among the programs continues in results found in the previous two years. The overall results of significant differences among the program are shown in Table 8.10 and the data in that table highlight the Reading and Language areas as domains that generate the significant results among the programs. Why this is so is worthy of further investigation, for it may well be that these areas assess a greater range of knowledge whereas traditional mathematics measures assess a narrower understanding at this elementary level. Certainly it is worth investigating the range and style of measures suitable for administration to children at this age. The information presented in Table 8.10 indicates that the children in the Behaviourist Program tended to do better overall than children in the other programs. To what extent these performances are an artifact of the measures used in the study is a matter of continuing argument (see, for example, House et al., 1978).

Table 8.10 Significant Mean Group Differences among the Programs over Three Years

Measure	Significant results		
	Preschool	Kindergarten	Year 1
Reading			
Pre-reading	ns	Cont > Beh,Comp, Cog	—
Reading-Accuracy	—	—	Beh > Cog
Reading-Comprehension	—	—	Beh,Cont > Cog
Perception			
Visual	Comp,Cont,Beh H-b > Cog	—	—
Auditory	ns	—	—
Language			
Vocabulary	Beh,Comp > Cog, Cont	Cont > Comp	ns
Syntax	Comp,Cog > H-b	—	ns
Spelling	—	—	Beh > Cog,Cont
Mathematics			
Curriculum	—	ns	ns
Conceptual	(1 subtest) Cont > 4 other programs	(1 subtest) Beh, Cog > Comp, Cont	ns
Social Knowledge	—	ns	ns
General			
PSI	ns	—	—
Boehm	—	ns	—

ns = no significant differences among the group means
Cog = Cognitive
Comp = Competency
Cont = Contemporary
Beh = Behaviourist
H-b = Home-based
— = Measure not administered in that year

Table 8.11 Summary Table of Main Findings

Questions	Preschool	Kindergarten	Year 1
1 Does enrolment in preschool programs benefit children?	Yes (No)[a]	Yes on 3/5 measures	No[b]
2 Does continuity of programming over three years have a marked effect upon children's performance?	—	Yes to some extent and primarily within experimental classes	Little effect
3 Were there differential effects produced by the various programs?	Yes	Yes	Yes

[a] 'No' at the end of Preschool

[b] There appeared to be a trend for the preschool girls to score higher means than the non-preschool girls on the majority of the measures.

Summary

The data reported in this chapter addressed the three main questions of the study. As in a number of social science evaluation studies of a similar type (cf. Zigler and Valentine, 1979), the results are not always unequivocal. Some of the findings are clear-cut, others require qualification. Table 8.11 reports the main results in a condensed format which hides the many possible 'ifs and buts'. It is presented in this format at the risk of oversimplifying the results, but this is a risk that is judged to be worthwhile.

On reflection, we could have approached the data collection in slightly different ways, had time and motivation permitted, but we do believe that the results presented are the best possible, given the inevitable compromises on reliability, validity and time with which we were faced.

9

Other Results of the Study

The previous chapter presented the overall results relating to the main research questions of the study. Other questions that we believed important to pursue are listed below, and the results relevant to these are presented in this chapter. The issues they introduce are of equal interest to a range of groups such as administrators, teachers and teacher educators, as well as the community at large, and we have not attempted to discuss them in any particular order of importance. They are:

1 Did the programs facilitate the social development of children?
2 Were there any unexpected effects generated within the Project?
3 What impact did the introduction of the preschools have on the school-related achievement of the children in the same schools?
4 Did enrolment in preschools affect children's later attendance patterns in the infants schools?
5 Were the preschool programs differentially effective for children who entered preschools with different ability levels?
6 How did the performances of the children in the Home-based Program compare with non-Home-based children at the same school?
7 How did the Project affect teachers?
8 What did educational administrators see as the values associated with the Project?

Did the Programs Facilitate the Social Development of Children?

One of the frequently claimed advantages of preschool education is that such programs foster children's social/affective development, as well as their cognitive and school-related achievement (Parker, 1972). The original evaluation model for the Project (Ball and Braithwaite, 1975) planned for the collection of social/affective data throughout the implementation of the programs. To achieve this, a number of trial instruments were developed or modified, then tested. Generally, many of these trial instruments were discarded because they lacked validity or their reliability was too low to allow meaningful interpretations of the data. The variability of children's behaviours and responses at this age level was such that it was decided, albeit regretfully, not to collect social/affective data based on children's responses.

However, it was decided to collect teachers' ratings of children's development in the social/affective domain. To achieve this, two trial instruments were developed and tested, the *Preschool Observation Schedule* (POS) and the *Kindergarten Rating Scale* (KRS). A modified rating scale was developed for use in Year 1 classes, but subsequent analyses found that the teachers were not consistent in their use of the scale, hence its data were not included in the analyses. No POS or KRS data were collected on children in the Home-based Program.

Both the POS and the KRS required teachers to rate children's behaviours on four dimensions—language, need-achievement, anxiety and prosocial/aggression behaviours. These dimensions were chosen since earlier research had suggested that they were dimensions that preschool programs could influence, and they were areas identified by the teachers as being important for them to know about. For example, Sarason et al. (1958) and Ruebusch (1963), among others, highlighted the direct relationship between children's anxiety levels and successful learning within schools. Similar support can be found for the inclusion of the other dimensions in the instruments, in the research reviews of Beller (1973) and Swift (1964). Minor modifications were made to the POS to make its behavioural statements relate more to the Kindergarten classroom learning situations. The ratings on the Likert scale on the POS and KRS represented 'Very much like' (5) to 'Not at all like' (1). A separate column was included for a 'Not Sure' response, but this was rarely completed. Factor analyses supported the construct of the instruments and consistently showed the same items as loading on the same factors at each data collection period.

Before the data are presented, three caveats concerning analysis of these data must be expressed. First, teachers rated the items on a five-point ordinal scale. Several writers (e.g. Siegel, 1956) argue that ordinal scales should not be subjected to parametric analysis techniques. However Popham's view that the researcher is usually on safe ground when parametric tests are applied to data which are somewhere between ordinal and interval strength was accepted (Popham, 1967:273). Second, the data are probably contaminated to some degree by the teachers' training and pedagogical beliefs. To lessen the impact of prior attitudes and 'self-fulfilling prophecies', the items were written in behavioural terms. The teachers were asked to rate children's direct, observable behaviours. Third, it is not possible to compare directly the data across the four programs as there were no independent raters assessing the children across all programs over the two years. The teachers rated children all independently within their own programs and, where more than one teacher was teaching the experimental groups, continuous checks were made on the inter-rater reliabilities. (These ratings achieved moderate to high inter-rater reliability and stability coefficients within each program.)

The POS and KRS data were analysed using analysis of variance techniques to determine whether the mean ratings taken at the end of each term differed significantly over the relative periods. This approach is different from the analyses presented in chapter 8 in that it presents data collected every two months in the preschool year and at the end of each term in Kindergarten and not, as was the case previously, at the end of the year. Trend analysis was considered to be an inappropriate procedure for examining the POS and KRS data owing to the changes in the raters within programs over the three years. It is believed that, as social behaviours generally change over time, the presentation of data from different time periods is necessary. Tables 9.1 and 9.2 present the means, standard deviations and F-values associated with the analyses of variance on these data.

Examination of Table 9.2 reveals that in the preschool year all the teachers recorded that the children had slight though significant ($p<0.01$—$p<0.05$) gains on the language dimensions. The overall trend was to rate children higher on this dimension, indicating that the teachers judged there was growth in the children's language. Such a finding is supported by the vocabulary data (see Tables 5.10 and 8.1) with which this POS dimension correlates moderately ($r = 0.48$, $p<0.01$). In the Kindergarten year only one significant F-value in language was reported. Children in the Competency Program varied in their group mean rating given over the year. At the end of the second term, the teacher recorded significantly lower ratings. No reason can be advanced for this result as the PPVT and syntactical data showed that the children in this program performed comparatively well in these areas at the end of Year 1. In the three other programs quite minor improvements in the mean ratings were recorded.

With the pro-social dimension, the preschool data in Tables 9.1 and 9.2 moved in the expected direction, with significant changes in mean scores over the four rating periods. The teachers rated the children in all programs as becoming more friendly towards one another, more compliant, more responsible and more ordered in their behaviours. In general, socially desirable types of behaviours stood out while socially undesirable ones were kept in check. In the Kindergarten year, the teachers did not vary their ratings to any great extent over the three periods. In the Contemporary Program there was a significant ($p<0.05$)

Table 9.1 Means and Standard Deviations for POS and KRS Variables[a]

Dimensions	Time	Cognitive $\bar{X}$	Competency $\bar{X}$	Contemporary $\bar{X}$	Behaviourist $\bar{X}$
Language					
POS (*Preschool Observation Scale*)	1	3.3(1.1)	3.1(0.9)	3.1(0.9)	3.2(0.9)
	2	3.9(0.9)	3.5(1.0)	3.1(0.8)	3.5(0.9)
	3	3.8(1.0)	3.4(1.1)	3.4(0.9)	3.6(0.9)
	4	4.1(1.0)	3.6(0.9)	3.8(0.9)	3.6(0.9)
KRS (*Kindergarten Rating Scale*)	1	3.3(0.9)	3.2(0.9)	4.0(0.7)	3.0(1.2)
	2	3.3(0.6)	2.8(0.9)	3.6(0.6)	3.1(0.9)
	3	3.4(0.6)	3.4(0.7)	3.9(0.6)	3.3(1.0)
Pro-social					
POS	1	3.5(0.7)	3.4(0.6)	3.5(0.6)	3.7(0.5)
	2	3.7(0.7)	3.6(0.6)	3.5(0.5)	4.0(0.4)
	3	3.7(0.6)	3.8(0.6)	3.7(0.5)	3.8(0.4)
	4	3.8(0.7)	3.8(0.8)	3.8(0.5)	3.8(0.5)
KRS	1	3.5(0.7)	3.4(0.6)	3.6(0.7)	3.8(0.6)
	2	3.4(0.6)	3.1(0.6)	3.2(0.5)	3.5(0.8)
	3	3.4(0.7)	3.4(0.7)	3.3(0.5)	3.8(0.5)
Need-achievement					
POS	1	3.6(0.9)	3.4(0.8)	3.2(0.8)	3.6(0.7)
	2	4.1(0.7)	3.8(0.9)	3.4(0.6)	3.8(0.6)
	3	4.0(0.8)	3.7(0.8)	3.6(0.7)	3.7(0.7)
	4	4.4(0.7)	3.7(1.0)	3.8(0.8)	3.8(0.7)
KRS	1	3.7(0.8)	3.5(0.8)	3.8(0.6)	3.7(1.0)
	2	3.6(0.5)	3.2(0.6)	3.5(0.6)	3.8(0.8)
	3	3.7(0.5)	3.4(0.5)	3.7(0.6)	4.2(0.8)
Anxiety					
POS	1	2.8(1.0)	2.9(0.9)	2.6(0.8)	2.2(0.8)
	2	2.5(0.9)	2.6(1.0)	2.4(0.7)	2.2(0.8)
	3	2.4(1.0)	2.4(0.9)	2.4(0.7)	2.1(0.7)
	4	2.0(0.9)	2.4(0.9)	2.2(0.9)	2.1(0.9)
KRS	1	2.8(0.8)	2.4(1.1)	2.3(0.6)	2.2(1.2)
	2	2.6(0.6)	3.3(0.9)	2.8(0.6)	2.2(0.8)
	3	2.5(0.7)	2.9(0.9)	2.7(0.6)	2.2(0.8)

[a] Preschool N = Cognitive 61, Competency 35, Contemporary 55, Behaviourist, 39.
Kindergarten N = Cognitive 56, Competency 25, Contemporary 20, Behaviourist, 40.

Table 9.2 Univariate Analyses of Variance on POS and KRS Variables

	Programs							
	Cognitive		Competency		Contemporary		Behaviourist	
	F-value	p<	F-value	p<	F-value	p<	F-value	p<
Language								
POS	13.7	.01	2.6	.05	11.7	.01	5.1	.01
KRS	.5	ns	3.2	.05	2.5	ns	9	ns
Pro-social								
POS	4.9	.01	3.0	.05	11.1	.01	8.7	.01
KRS	.6	ns	2.0	ns	3.7	.05	3.0	0.5
Need-achievement								
POS	18.8	.01	1.9	ns	15.0	.01	1.2	ns
KRS	1.2	ns	2.2	ns	2.7	ns	3.8	.05
Anxiety								
POS	8.8	.01	4.9	.01	5.1	.01	.8	ns
KRS	2.3	ns	6.6	.01	5.2	.01	.1	ns

ns = non-significant

movement in the mean rating where the children were rated less pro-social over the year, while the teachers in the Behaviourist Program rated a slight regression in the children's pro-social behaviour in the middle of the year. However the teachers' ratings of the children's behaviours on this dimension confirm expected behaviours and mirror the PROSE data about undesirable/aggressive behaviours.

The items nominated for the need-Achievement dimension reflected the teachers' ratings of the children's abilities and their attitudes towards structured and unstructured learning experiences. In general, all the preschool teachers rated improvements in the children's consistency in completing their activities and increased abilities to undertake learning experiences. The most significant changes in the mean ratings occurred with the children in the Cognitive and Contemporary Programs. As both of these programs required more child-initiation than the other two programs, this was quite an important finding. The successful implementation of these two programs required that the children plan, initiate and finish activities successfully. In Kindergarten there were only minor changes in the mean ratings on the need-achievement dimension, except for the Behaviourist Program where the teachers' ratings showed a significant change ($p < 0.05$) over the year.

The anxiety dimension reported the teachers' ratings of the children's anxiety levels within the classes. As noted previously, anxiety can directly affect children's learning. Consequently, all programs sought to lessen children's anxieties about their learning situations. The teachers' ratings of children's anxiety levels had to decrease to conform to program intentions. At the preschool level, significant changes in the mean ratings in the desired direction were recorded for the Cognitive, Competency and Contemporary Programs, while the Behaviourist teachers' mean ratings did not vary significantly over the rating period. The Kindergarten teachers' ratings of the children on the anxiety dimension fluctuated significantly only in the Competency Program where the teacher rated a higher mean level of anxiety behaviours at the end of Term 2 ($p<0.01$). Minor and non-significant changes in ratings were made in the three other programs.

It is apparent for the most part that the teachers rated the children's behaviours in the social/affective domain as moving in the desired or intended directions. The preschool and Kindergarten classes were quite successful in modifying children's behaviours if the teachers' ratings on POS and KRS are used as criteria. There is no reason to suspect that the ratings were unreliable or invalid, for the constant monitoring and training of the teachers in the use of both forms resulted in the development of instruments that teachers could use in reliable and meaningful ways.

Were there any Unexpected Effects generated within the Project?

In developing, implementing and evaluating the programs, the teachers and program assistants were obviously trying to achieve the objectives and teacher/learning practices that had been set down for the programs. Overall, it is believed that the programs as implemented achieved a high degree of fidelity with the stated intentions, and this is confirmed by the PROSE and other data presented in chapter 8. However, there were occasions when it became apparent that the programs were producing effects that went beyond the intended outcomes. Many of these unexpected effects were subjectively reported by teachers or program assistants, who recorded them in their ongoing 'logs'. Their comments are summarized in the following paragraphs.

Of the different programs, the Cognitive, Behaviourist and Home-based Programs received the greatest scrutiny by parents and outside observers. This in some ways was natural since these were the programs that represented the greatest differences from traditional Australian practices. Early childhood educators from training colleges commented upon the fidelity of the Contemporary Program's practices to existing Australian preschool practices. Each had differing views, and consensus was difficult to obtain. While others (cf. Ashby, 1972) have commented upon the lack of clarity in the aims and practices of Australian preschools that prevailed around the time when the Project was first developed, it was confusing for Project personnel, teachers and parents to hear conflicting views being advanced by the 'experts'. Fortunately, the teachers and the program assistant concerned had a clearly defined view of what they were trying to achieve and how the program was to be implemented. This view was based on a comprehensive analysis of actual practices in Australian preschools. However, the 'experts' saw what they wanted to see and their reports were confusing to the teachers. They seldom attempted to examine the Contemporary Program against its documentation.

Such attitudes created confusion at times and highlighted the need to document in the clearest possible terms the objectives and teaching practices in each program. Further, to clarify 'uninformed' comments that had been expressed, and to provide a clearer view of overall Project intentions, we determined that it was necessary to provide visitors with orientation sessions prior to visiting the classes. This approach reduced the number of uninformed comments which had often dramatically affected the personal attitudes and well-being of the teachers. The Project staff initially needed to 'protect' teachers and to head-off criticism that could have undermined their morale. Lest this sound too defensive, the point must be made that, once the teachers were settled in their routines and knew 'where they were going', they were more than capable of defending and/or justifying their own programs.

Another issue that created some short-term anxieties related to some of the practices of the Cognitive Program. While a great amount of time and effort went into explaining to parents the rationale and practices followed in the program, some were anxious about their children's progress. The empirical evidence suggested that the children were not being educationally disadvantaged through participation in the program, and in fact were benefiting in many ways, but some parents nevertheless found this hard to reconcile with their own traditional views of schooling. Special booklets were prepared and distributed to parents pointing out details about the programs in order to provide them with detailed knowledge about the likely outcomes of the program in terms of their children's educational progress. By and large, this strategy successfully convinced most parents that the program was worthwhile. However, opposition was still expressed by some parents who disagreed with the program's inquiry-centred approach to learning. These parents reported that they found it difficult to cope with the children continually asking 'Why?' at home, especially when the predominant practice among these parents was to expect the children to accept their parents' views as correct and not open to challenge. While too great an emphasis can be placed on such an outcome caused by programmatic features, it is important that schools be conscious of a clash of values and/or life-styles that may occur between school and home, when irregular curriculum variations are considered for implementation.

Surprising and unexpected outcomes were the ways in which the Home-based parents established a network to organize other social, educational and welfare activities beyond the original intentions of the Project. The regular coming together of parents to share ideas and common problems enabled them to form groups around jointly shared problems. Some of these groups were formalized into ongoing self-help groups, while others were informal groups which dissolved once the immediate problem was overcome or dealt with. The power of these groups, and the mutual reinforcement present among their membership, enabled them to tap into the appropriate resource units for assistance in a way that may not have been possible had they tried individually to gain assistance. The network of families promoted by the Home-based Program was a strong support for school-community links, although it could be argued that the local school itself did not always take advantage of the full potential of the network. Schools have to be ready to look beyond their traditional roles and boundaries to take advantage of such developments.

One of the key components of the Behaviourist Program was its use of praise as a social reinforcer and the use of 'time out' procedures when disciplinary measures were called for. The teachers at first felt somewhat uncomfortable when implementing the reinforcers but soon became accustomed to the procedures as the program was implemented. They reported that after a while they found that the effective use of praise meant that 'time out' practices were seldom used. Further, they found that after a while 'praise' reinforcers created somewhat artificial situations and they decided to stop using this technique for certain periods during the term. They found that by carefully monitoring and recording children's task and social behaviours they could determine when it was necessary to reintroduce the reinforcement system. As a result of their monitoring and recording of the class situation, the teachers became more aware and sensitive to developments both within and outside the classroom. In reality the teachers became better clinical analysts of their own teaching and of classroom conditions than they had been before.

While these were some of the Project's unexpected outcomes, they are all effects on either teachers, children or parents. It is not always anticipated that the development of a Project will affect the attitudes of the Project staff. Certainly it could have been expected that knowledge about the methods of implementing the programs would grow with experience gained over the life of the Project. What was not expected, however, was the way in which our collective attitudes towards ways of working with schools, teachers and parents changed. Perhaps we were naive in our initial approaches towards the development of the Project, for we had begun with an interventionist approach which, when confronted with the realities of everyday working with schools and the community, changed to an interactionist approach as the only way of achieving our objectives. Such a development highlights the naivety of our original approach, but the importance of this development for the successful completion of the Project cannot be overstated. Put bluntly, we believe that an interactionist approach is the only one that can be successfully adopted when trying to work with disadvantaged groups.

What Impact did the Introduction of the Preschools have on the School-related Achievement of the Children in the same Schools?

In chapter 8 an analysis was presented comparing preschool and non-preschool children's performances on a number of different measures. These data enabled specific comments to be made about the immediate impact of the preschool programs on children of equivalent ages and backgrounds. Yet there is another comparison that can be made to give a longer term assessment of the possible impact of establishing preschools in conjunction with the traditional infants classes. This approach compares the performances of preschool children with an equivalent group of non-preschool children at the end of Kindergarten, who had enrolled in the same schools before the Project began in 1975. This analysis enables the preschool children's performances to be compared with a non-preschool group who were not affected either directly or indirectly by Project activities. Each comparison group passed through the same schools in which, as far as can be determined, contextual variables such as human and financial resources were equivalent. No objective or subjective evidence was available to suggest that either of the two cohorts were atypical.

The same tests were administered to both groups—the *Murphy-Durrell Reading Readiness Analysis* and the *Boehm Test of Basic Concepts*. The results of Kindergarten children who had been in preschool were obtained from the testing program administered to these children at the end of Kindergarten; those who were in Kindergarten in 1975 were tested individually at the end of 1975.

This meant that the 1975 non-preschool children could be compared with the 1978 preschool children (1978 Group A); and that the 1975 non-preschool children could be compared with the 1978 non-preschool children (1978 Group B).

Table 9.3 Means and t-test Comparisons for 1975 and 1978 Kindergarten Children

		Boehm test			M-D pre-reading					
					Letter names			Phonemes		
			p(t)			p(t)			p(t)	
	N	$\bar{X}$	comp.1[a]	comp.2[b]	$\bar{X}$	comp.1	comp.2	$\bar{X}$	comp.1	comp.2
Program										
Cognitive										
1975	30	33.2	ns[e]	ns	14.7	ns	ns	39.6	ns	ns
1978-A[c]	41	35.7			13.3			37.6		
1978-B[d]	31	34.6			12.1			38.5		
Competency										
1975	30	32.1	.01	ns	13.1	ns	ns	33.1	ns	ns
1978-A	24	36.8			15.0			34.5		
1978-B	12	29.6			9.3			28.6		
Contemporary										
1975	30	33.8	.01	—	12.9	.01	—	37.4	ns	—
1978-A	28	38.1			19.2			41.5		
Behaviourist										
1975	30	34.8	ns	ns	8.7	.01	.05	34.2	ns	ns
1978-A	37	37.0			14.0			36.7		
1978-B	25	35.6			11.8			34.6		
Total										
1975	120	33.5	.01	ns	12.4	.01	ns	36.1	ns	ns
1978-A	130	36.8			14.9			37.4		
1978-B	68	34.1			11.5			35.3		

[a] comp.1 = comparison 1 (1975 with 1978-A)
[b] comp.2 = comparison 2 (1975 with 1978-B)
[c] 1978-A = preschool children in experimental classes
[d] 1978-B = non-preschool children in non-experimental classes
[e] Probabilities are for two-tailed test.
ns = non-significant

Table 9.3 sets out the means and t-tests for these comparisons for the four centre-based programs. Comparing the total group scores for 1975 children with the 1978 preschool group, it can be seen that the 1978 Group A had significantly higher mean scores on the Boehm test ($p<0.01$) and on the 'letter names' sub-test of the Murphy-Durrell pre-reading test, than did the 1975 group. The most significant results in this comparison occurred for the Competency and Contemporary Programs for the Boehm test, and for the Contemporary and Behaviourist Programs for the Murphy-Durrell test. If the data represent a valid comparison, and are not affected by any unknown factors, it could be claimed that the establishment of the preschool centres had a positive effect in the children's performances on these two measures. This is especially so when the data from the second comparison are analysed. On only one comparison was there significant difference ($p<0.05$) between the group mean scores of the two non-preschool groups, which further supports the previous claim regarding the impact of the preschools within the school. Some qualification must be placed on this statement, given the limited number of measures used for this comparison, but these data do give limited evidence to support the establishment of the preschool centres.

Did Enrolment in Preschools affect Children's Later Attendance Patterns in the Infants Schools?

In an attempt to address this question, the attendance records of preschool children in later years were compared with those of non-preschool children. It was argued that children who attended preschool would have a more positive attitude towards schooling and this would show in their subsequent school attendance. Data for the area over the four years from 1977 to 1980 from the NSW Department of Education indicated that all children in the area had slightly more absences from school than was the overall pattern for New South Wales. Therefore it was of interest to us to determine whether the establishment of the preschools had had any significant impact upon the attendance of children in Kindergarten and Year 1 classes.

For these comparisons, the attendance data from the schools for the two years, 1978 (Kindergarten) and 1979 (Year 1), were collected and analysed using multivariate analysis of variance techniques. Table 9.4 presents the results of the analyses. The 1978 analysis had three factors, preschool/non-preschool, program and sex, while the 1979 analysis included only the first two factors.

Table 9.4 shows that, for the Kindergarten data, the significant effects were the program × preschool/non-preschool interaction ($p<0.01$), and the preschool/non preschool ($p<0.01$) and program ($p<0.01$) effects. The interactions showed that the patterns are complicated by whether or not the children attended preschool and the program they attended. The children who did not attend preschool were absent significantly more often than children who did. There were more absences at the school where the Behaviourist Program was implemented. No differences existed between males and females in the number of days absent. This overall trend continues in Year 1, where significantly more non-preschool children were absent from school ($\bar{X} = 18.1$) than preschool children ($\bar{X} = 14.4$), with no significant program effects on absences. As an interesting sub-analysis, the 1979

Table 9.4 Summary of Multivariate and Univariate Analyses of Variance on Attendance Patterns for 1978 and 1979—Preschool/Non-preschool Comparisons

Effect	F-value	p<
1978 Kindergarten		
Program x Preschool/Non-preschool x Sex	1.65	ns[a]
Program x Sex	0.52	ns
Program x Preschool/Non-preschool	4.36	.01
Preschool/Non-preschool x Sex	0.41	ns
Program	4.38	.01
Preschool/Non-preschool	16.95	.01
Sex	2.06	ns
1979 Year 1		
Program x Preschool/Non-preschool	1.75	ns
Preschool/Non-preschool	3.78	.05
Program	0.34	ns

ns = non-significant

post-test scores of the Year 1 children were analysed on the basis of their absences from school. Three groups were formed, low absence ($\bar{X} = 7.9$), mid ($\bar{X} = 24.4$) and high absence ($\bar{X} = 76.1$) and their 1979 post-test results analysed. No significant differences on any of the measures were found in the three-way analyses, but in three out of the six measures children in the low absence group achieved higher group mean scores than children in the high absence groups.

Reviewing the above data, it is apparent that in both the Kindergarten and Year 1 classes the preschool children were absent from school less frequently than non-preschool children. To obtain a clearer picture a longitudinal follow-up would be essential.

Were the Preschool Programs Differentially Effective for Children who entered Preschool with Different Ability Levels?

An aim of most educators is to design educational systems where the instructional components are matched to the interests and abilities of the students. Therefore it was important to determine whether some or any one of the programs was more effective than others for children of different ability levels. Ideally we would like to be in a position to advise parents that programs based on *these* instructional components will be more beneficial for children with *x* abilities than others. To date, most studies have reported non-significant results when data were analysed to determine whether programs differentially affected children with varying ability levels.

Table 9.5 **Summary of Multivariate and Univariate Analyses of Variance on Children with Different Entering Ability Levels**

	F-value	p<
Multivariate analyses		
Effect		
Program x Ability level	.90	ns
Program	2.15	.05
Ability level	5.44	.01
Univariate analyses		
Program		
Reading (Preschool)	.32	ns
Reading (Kindergarten)	4.76	.01
Reading (Year 1)	1.21	ns
Ability Level		
Reading (Preschool)	6.92	.01
Reading (Kindergarten)	11.39	.01
Reading (Year 1)	11.32	.01

ns = non-significant

For this, data from the core groups' performances on reading tests were analysed over the three years using multivariate and univariate analyses of variance. Reading was chosen for this analysis since the three reading tests (preschool and Kindergarten pre-reading and Neale Analyses) had had the highest correlation coefficients over the three years of any measures used in the study. They provided a relatively stable base on which to carry out this analysis. Moreover, this area of learning is considered a crucial one for all children.

The children in the four centre-based programs and the control group were divided into two extreme groups, high and low ability, based on the pretest PSI scores in the preschool year. One confounding factor in this division was the homogeneous performances of the children on the pre-test PSI. Had there been more heterogeneity in the home-background variables, it is likely that the high and low ability groups would have been more clearly differentiated from one another.

The analyses based on the three reading tests are presented in Table 9.5. Inspection of this table indicates that the interactive effect was not significant but that the program and ability effects had significant F-values. The data were then re-analysed with the interactive effects removed from the analyses of variance. The univariate statistics in Table 9.5 show that there was a significant program effect in the Kindergarten data ($p<0.01$) and between the different ability levels over the three years ($p < 0.01$). Examination of the individual effects of each program for the Kindergarten year showed that the group mean scores of both groups of children in the Contemporary Program were higher on this measure than children's group mean scores in any other of the programs. Further there were significant differences between the group mean scores of the high and low ability children in all the programs over the three years. Consequently, while there was a significantly higher group mean score for the children in the Contemporary Program on one measure, the overall data indicate that all the programs tended not to produce differential effects upon children with different ability levels. Why the Contemporary Program produced a significant effect on the Kindergarten measure is difficult to determine, and by the end of Year 1 there were no differences among the groups on the reading measure used at that time. On this one measure, children with different ability levels performed equally in each program, though there was a higher group mean score for the children in the Contemporary Program at the end of Kindergarten. The relatively small samples used in this analysis suggest that this finding should be treated with caution.

How did the Performances of the Children in the Home-based Program compare with non-Home-based Children in the Same School?

The benefits attributed to having parents directly involved in and assisted with the education of their children under five have been substantiated by a number of studies (see, for example, Levenstein, 1977; White et al., 1973). The Home-based Program was designed to guide and support parents in the education of their young children by visiting teachers working with parents and their children within their homes, supplemented by occasional group activities. That the program was prevented by legislation from working with children under three years and nine months of age was a matter of real concern. However, the experiences that were provided within the Home-based Program were valuable to both parents and children alike, and this was confirmed by the evidence presented in chapter 6. Another useful comparison that may be made is between the performances of Home-based children and non-Home-based children at the end of Kindergarten, when the Home-based children were equally distributed across the four Kindergarten classes of the one school. Teacher effects in such a situation were deemed to have equal influence upon both groups for the purposes of this comparison.

At the end of Kindergarten a sample of fifty-one non-Home-based children and twenty-one Home-based children were selected from the four Kindergarten classes in Bidwill school. The random samples were stratified as to whether the children were enrolled or not in the Home-

Table 9.6 t-test Comparisons between Home-based Children and Non-Home-based Children at the End of Kindergarten[a]

Measures	Home-based			Non-home-based			t	p<
	N	$\bar{X}$	SD	N	$\bar{X}$	SD		
Boehm	21	35.0	6.3	51	35.6	5.5	.04	ns
Murphy-Durrell	21	42.1	14.3	51	47.0	15.3	1.28	ns
PPVT	21	51.8	7.9	51	53.9	7.1	1.10	ns
Circus Maths	21	17.4	1.9	51	16.9	1.9	1.04	ns
Social Knowledge	21	24.8	4.3	51	26.5	3.2	1.64	ns

a Seperate Variance formula (Popham, 1967:145), two-tailed test (df 20,50)
ns = non-significant

based Program. The same five measures given to Kindergarten children at the four centre-based programs were administered to this group. Table 9.6 presents the means, standard deviations and t-test comparisons between these two groups on these measures. As can be seen in this table none of the comparisons had t-values that were significant at the 0.05 level of significance. In general, the total group means of the non-Home-based children were slightly above those of the Home-based children on four of the five measures. However when the data were examined on a class-by-class basis, inconsistent results were obtained which favoured neither group. On another level teachers and Project staff throughout the Kindergarten year commented that the Home-based children were more independent within the classrooms and appeared to be more self-assured when the Kindergarten classes began in 1978.

Overall, the above data suggested that the Home-based children were comparable to a non-Home-based group at the end of Kindergarten, but it is suggested that the differences which were observed were not those assessed by the test battery given to these children.

How did the Project affect Teachers?

As the teachers had the primary responsibility for the successful implementation of the Project, their attitudes and behaviours were crucial to the Project's ongoing activities. Their enthusiasm and willingness to take the extra steps made many difficult challenges less burdensome. Obviously, it was important to gather data on the teachers' perceptions of the Project, for such data were important in guiding the formative and summative progress and evaluation of the Project. Data were collected from the teachers on weekly, term and end-of-year bases by having them complete teacher 'logs' and specific questionnaires. The main points of these data are presented in the following summaries written from two viewpoints—the teachers' views and those of the Project personnel.

Teachers' Ongoing Perceptions

'Apprehension' best describes the initial reactions of the first group of teachers to volunteer for the Project. They were not sure what was entailed in the implementation of such a thing as an evaluation project. As one commented:

> I think we knew we were going to be looked over fairly regularly and I guess that was a new experience for most of us. However, as time went on and we could see that people were supportive, our or rather my fears lessened. However, no matter how many times we were observed, video or whatever, I still could feel the adrenalin flowing beforehand. Fortunately I don't think the children sensed my feelings.

When the initial group of teachers attended the three-month course at Macquarie University they were understandably anxious for more and more information about 'how to do it' and became critical of the initial focus on semi-theoretical issues in early childhood education. However, as one said later:

> My concern over the tenor of the discussions disappeared to a great degree when I came to make a decision about which program I was going to be involved with. I realized that I could base my choice on my own values and ideas and that the nitty gritty was not that important at this time.

The time when the teachers had to choose their programs was a period of heightened anxiety for all. The teachers were concerned as to whether they would make the right choice, the Project staff were fearful that all would choose the same program. Fortunately, whether through constant discussion among themselves or through discussions guided by Project staff or other factors, the original choices of program suited all concerned and the teachers soon settled down to acquire specific skills and knowledge. Of the original group of teachers, the Home-based teachers showed the greatest anxiety. Understandably it was quite a new experience they were taking on and the early teething problems of the program did not alleviate their concern. Fortunately their program assistant had worked on a similar program previously and through her skilful guidance many of the initial qualms were discussed and generally soothed.

For the centre-based teachers in the initial recruiting period, the greatest concern facing them was the prospect of working in a team-teaching situation. None of them had experienced this style of teaching before and the thought of having to plan and act together was, for them, a novel experience. To some degree their concerns were overcome when they realized that throughout the training period they were intensively 'judging' one another, so that the pairing of teachers to work together was not as daunting a task as they had imagined. Of course, to support them in this they had the ongoing assistance of the program assistants, who guided them in their initial and subsequent planning experiences.

As the teachers settled into the implementation of their programs they encountered no problems, since they thought through their own solutions for the implementation of the programs. The sharing of the planning with each other and the program assistant made the teachers' task easier, for, as one teacher stated, 'I didn't realize the value of planning and sharing and we really got to know the children better'. Perhaps the greatest benefits associated with team-teaching were the ways in which the teachers found themselves reinforcing each other and capitalizing on each others' strengths. However, it must be stated that commitment to mutually shared views and values is essential if teachers are to work in a team-teaching situation like this.

Teachers in all the centre-based programs commented upon their apparent isolation from the teachers in the rest of the schools. This 'isolation' was compounded by the physical separation of the preschool centres from the infants school. The preschool teachers rarely met the other teachers and teachers in all programs expressed the view that they felt isolated from the mainstream of school life, to the extent they believed that most teachers did not fully appreciate the value of the preschool experiences for the children.

Fortunately throughout the Project's years, only one teacher had difficulty fitting into any of the experimental classes. All teachers were informed about the Project and its objectives before they made the decision to work in the classes. The demands made on teachers by Project staff and parents were quite considerable. The Project staff had to work with, guide and evaluate the various activities. Parents were always asking for assistance. Their demands were, on the whole, generously met by the teachers. The one teacher who left found the incessant demands too great and said that they didn't allow her 'to teach'. By mutual agreement this teacher was replaced by another more experienced teacher, who could handle these ongoing pressures. For the most part, the teachers and Project staff worked harmoniously. At times the teachers became too dependent upon the program assistants for guidance, but by and large this situation was overcome by the individual program assistants' gradual and temporary withdrawal from the schools. The teachers were always quick to inform the Project staff when the latter had made demands of them which were beyond their capabilities or time resources.

Teachers' Retrospective Perceptions

At the conclusion of each year, the teachers were asked to reflect on their own experiences and to summarize their views about the programs, the parents and any other issues that concerned them. By and large these retrospective evaluations were extremely positive as evidenced by views such as:

> Most enjoyable and rewarding . . . it made me a more confident teacher and developed a broader view of teaching that is far more child-centred . . . the parents worried me at first but I think that I have overcome that aspect and look forward to their help . . . I wish I could start again with what I know now . . .

There is no doubt that the teachers changed over the years as they became more skilful and comfortable in their roles. For example, the data collected from the teacher information questionnaire given to the original group of teachers in 1975 and 1977 revealed that their attitudes, as examined in the questionnaire, had changed over that period. The Home-based teachers did not change as many of their responses in their period as did the centre-based teachers. The Home-based teachers had dissimilar response patterns in 1975 and exhibited the same idiosyncratic response patterns in 1977. To some extent this reflected the nature of the items which asked for their opinions about practices generally found in centre-based programs. Within each program, the centre-based teachers became more similar in their response patterns when the 1975 and 1977 data were analysed with cluster analysis techniques. Such a finding is not unexpected as teachers soon learnt to borrow and assimilate ideas from their team members as they worked together over this period. In some ways this result reflected the extent to which the teachers in the programs began to think, plan and react as teams.

All in all, the teachers claimed to have enjoyed the Project and its activities and believed that they benefited positively from the experiences.

What did Educational Administrators and School Principals consider to be the Value of the Project?

When the educational administrators and principals first met to discuss the future Project activities early in 1975, they were each given a blank sheet of paper and requested to describe the benefits they saw (if any) arising from the (then) future activities. Their responses to this request, were, to say the least, varied. Some were primarily concerned about administrative issues, others about 'Could we achieve our own (i.e. the Project's) objectives?'. However, running through all their responses were the following concerns:

1 (The Project) had to try to link school and home together more effectively;
2 it ought to inform them all about new educational developments;
3 it ought to provide a better foundation for children's learning and overcome their educational disadvantage; and
4 it ought to reveal the effects of the different programs to administrators and principals.

While such responses may have been little more than conditioned expectations on their part, it is interesting to note the degree of congruence between these statements and the Project objectives. In many ways these people brought to the Project a compensatory attitude towards early childhood education whereby they viewed the Project as supplementing the 'deprived' educational experiences provided by the homes. Few present on the first day expressed the notion that the schools would have to modify some of their existing practices in order to create the goodwill and interchanges that were to develop between preschool and homes. Few participants on that day, because of their limited experience of having preschools attached to the schools, could see that there was a potential clash between the educational practices of the preschool and the learning and social relationships prevalent in higher years. That such clashes were avoided, and that schools became more willing to involve parents in their practices, was due in no small way to a growth in the knowledge and perceptions of all the participants.

Each of the school principals approached the Project in different ways, representing their particular administrative approach. Some were completely open, and were prepared to let the Project staff initiate and develop activities and then, when necessary, to relate to them. Some wanted to be involved in the planning process from the beginning and to exercise a fairly tight control over activities, particularly those which were not typical of their past school practices. Each principal adjusted to Project activities in a variety of ways. Undoubtedly, the greatest influence in shaping their own attitudes was the meetings of the Field Committee. During these meetings principals, parents and Project staff swapped ideas, put forward new ideas, or criticized developments (or the lack of them). The relative 'openness' of these meetings gave the majority of participants the opportunity to raise issues in a collegiate atmosphere and many principals commented that these meetings were reinforcing to them and helped them to understand many of the Project's objectives. By the time the Project had finished, there had been a number of changes in school administrators but this did not greatly affect the overall running of the Project because of the general consensus that had been established as to where the Project 'was going'.

At the end of the Project, all administrators were asked to reflect on past developments. Their perceptions about the value of the Project were quite positive. For the most part all agreed that the Project did achieve most of its objectives and provided exceptionally useful experiences for parents and children. Some referred to the administrative problems caused by the establishment of the preschool and its comparative 'isolation' from the mainstream of school life, which were problems that they were still trying to overcome. Others saw greater benefit from more parents coming into the school: 'We're bringing them into the school for meaningful activities now . . . there is greater awareness of what we're trying to do—an awareness of the wholeness of education'. All commented upon the value to themselves the school and the individual teachers of having a continuing and effective liaison with the university personnel, claiming that such integration was unfortunately a rare occurrence.

All educational administrators claimed great benefits for the children and parents arising from Project activities. Some changed their own attitudes towards the role which preschools can play in education, others had some of their own views reinforced. In retrospect, it would be fair to claim that the Project was openly supported by the majority of administrators and principals. Those who were sceptical at first had the good grace to remain quiet while things developed. At the end, even the sceptics were re-thinking their views and that, for some, was no small movement.

Summary

This chapter has ranged over a number of issues selected from a variety of sources. It has attempted to analyse and report some of the data that were not part of the main analytical chapter. Some could quibble with the choice of issues that were addressed, but the final choice was a compromise which tried to determine which questions interested the majority of parents, educational administrators and Project staff. Of necessity other important issues already covered in the Project's evaluation reports, such as the detailed evaluation of programs, had to be left out. Parental views and responses were canvassed in chapter 7. The only views of a group affected by the Project not reported in these and previous pages, were the views of the children. Their views were canvassed, but it was felt that the photographs in this book express their views more effectively than words.

The various sets of data do confirm the efficacy of many of the Project's activities. Enrolment in preschool programs positively affected children's social and school-related achievement and appeared to affect equally the performances of children of different abilities, irrespective of whatever program they enrolled in. Children who had not attended the preschools were absent more from school than children who had. School administrators and teachers adjusted comparatively easily to the extra demands placed upon them by the Project activities and claimed that they had 'grown' by the experience. Some unexpected outcomes were generated but, in restrospect, they could have been predicted.

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Reflections

Over the years, Australian early childhood education has developed policies and practices that have been based on essentially pragmatic considerations rather than on sound theoretical and empirical evidence (Ashby, 1972). Moreover, attempts to overcome educational disadvantage among preschool-age children within Australia had been characterized by their failure either to develop comprehensive educational programs or to incorporate extensive evaluation practices into their planning. We were trying to provide substantial data based on an evaluation of a variety of well-developed programs. It is fair to ask why we selected the number and type of programs that we did. What we were trying to do was to extend the range of options currently available in Australian early childhood education by presenting information about the development, implementation and evaluation of a number of educational programs designed for disadvantaged children. Further, we intended to gather data from as wide a base as possible so that we could consider the variables that affect children's school performances, namely parents, schools and teachers.

But before the main issues are examined, it is necessary to review two issues that limit the wider generalization of the results of this study. The first issue relates to our inability to replicate the programs in other settings. Both the NSW Department of Education and the Project had limited resources, and the demands of replication would have exceeded our resources. So, as often occurs in educational studies, the generalizations that may be made from this study must be limited. Nevertheless, it is believed that many of the findings would apply to schools whose pupils exhibit similar characteristics to the Mt Druitt children and who have similar resources.

The second issue concerns our attitude towards the development of different programs. We believed that we were not trying to prove which one of the different programs was 'the best', but we were trying to develop a range of quality, early childhood programs that could achieve specific objectives. Ultimately, we hoped that we could specify the outcomes that should follow from the successful implementation of a particular program. By so doing, we expected that educational administrators, teachers and parents could, if they so wished, implement particular programs in the expectation that certain outcomes would follow. The best programs ought to be those that have an awareness of the need to broaden the social environment in which schools traditionally operate. Effective early childhood programs operate within dynamic, pluralistic environments in which there is ongoing interchange between teachers, children and their parents.

With these two qualifications in mind it is now intended to consider some of the implications behind the main results of the study.

Looking [illegible]d the Results

Perhaps the first point that should be stressed is that we have demonstrated that it is possible to develop, implement and evaluate a number of different programs within schools that received the same resources as other state schools in Australia. It is obvious that there were a number of factors that facilitated our efforts.

First as Weikart and others (1972) have noted, the roles played by the program assistants throughout the Project were crucial to its success. They were in a position to guide, support and evaluate the teachers in their endeavours. Freed from the restrictions of ongoing teaching activities, the program assistants were able to plan ahead and to consider alternatives. While schools generally do not have the comparative luxury of having program assistants released from teaching added to their staffs, it is often possible to provide internal release for some member(s) of school staffs to plan various aspects of program development, implementation and evaluation. Giving teachers such opportunities to co-ordinate program activities increases the chance of success.

Second, the attitudes and skills of the teachers were obviously crucial to the success of the Project and their contributions have been stressed throughout this study. However, the valuable support also given by the teachers' aides to the Project's activities cannot be sufficiently emphasized. Before they came to the Project, they had had little experience in handling young children within a school setting. However, as they were guided through the program practices by the program assistants and the teachers, they became adept in carrying out program intentions. When teachers were absent because of illness, the aides were able to guide the relief teachers through the programs' routines and, by doing so, provided continuity in program implementation. As well, the fact that the aides lived in the area proved to be a wonderful resource, for they were able to supplement the teachers' knowledge of children and their parents through their ongoing contacts and relationships with families. While the Project continued, a number of aides enrolled in college courses to further their own skills and knowledge about early childhood education.

Third, the previous chapters have highlighted the roles played by the educational administrators within the schools. We doubt whether we could have achieved any of our goals without their collaboration. In many ways their continuous support helped when things became complicated and their ideas enriched the Project's developments. In particular, the willingness of the infant mistresses to take 'risks' at times provided the flexibility to try out new approaches when ideas did not work during the developmental period.

Guidelines The results of the study have implications for possible future actions in developing early childhood programs for disadvantaged children.

The study indicated that, compared with the comparison group that were tested on entry to Kindergarten, the preschool children benefited from their programs. Such a finding is not exceptional when compared with the results of the earlier Australian and overseas research cited in the first chapter. Indeed, the findings of this study are not as dramatic as some reported in other studies (cf. for example, Miller and Dyer, 1975; Weikart et al., 1978a). A number of reasons may be cited for this result, including the apparent degree of disadvantage of the Mt Druitt children compared with those in previous studies. Another reason would be the variety of instruments used to measure the children's performances in the various studies, for some instruments may have accentuated performances in specific areas compared with other instruments.

The important point is that the children enrolled in the programs benefited from their experiences in the areas assessed by the different measures. Additionally, the results showed that the Home-based teachers could transfer specific skills to mothers and thus reinforce the valuable educative roles played by the latter.

The results obtained by the children in the preschool comparison group also provide important information. The fact that there were no significant differences in the group means between the preschool children and this comparison group at the end of the preschool year indicates the false assumptions made by many who automatically label all families living in particular areas as 'disadvantaged'. The demographic data presented in chapter 3 clearly indicate that the area was disadvantaged when judged by those socio-economic criteria. Yet there were numbers of families, such as those in the preschool comparison group, whose child-rearing practices were extremely competent. Once again results such as these attest that the demographic and socio-economic criteria generally used to determine disadvantage are insufficient proxies for the complex interactions that occur within families. It is these interactions that White et al. (1973), for example, have shown to be important factors influencing children's development.

The results suggested that the advantages enjoyed by the preschool children, when compared with the non-preschool group, disappeared by the time the children had reached the end of Year 1. Such a finding is confirmed by the evidence presented in other reviews and studies (cf. Bronfenbrenner, 1974). Yet the long-term effects of preschool education are still a matter of some argument among researchers in the field, since the analyses of the data from a longitudinal follow-up of a number of Head Start programs in the USA have attributed significant advantages accruing to disadvantaged children from their attendance at preschool (Consortium for Development Continuity, 1977).

Many arguments have been advanced to account for the 'washing-out' of such advantages, including the failure to plan for curriculum continuity and the unwillingness of schools to modify their existing middle-class values and practices. In this study we did have the opportunity to influence the schools to modify some of their practices and to ensure that there was continuity in curricula over the three years. Yet as the results in chapter 8 attest, continuity of planning had little affect on children beyond the first year. One suggestion for the 'wash out' effect is that, while the teachers did plan to ensure continuity of learning experiences for the children, the increased complexity of knowledge presented to the children in the higher years confounded the benefits supposedly derived from such continuity. This is not to suggest that schools and teachers should not articulate their curricula through the years, for the logical structure of many school subjects and the obvious benefits to teachers' planning indicate otherwise. Rather it is suggested that the alleged advantages of continuity of programming over the three years were not reflected in the results obtained in this study. Of course it may well be argued that the benefits would show up in other ways but we have not collected any data to suggest that continuity of programming is of itself a solution to overcoming educational disadvantage.

After having worked with the programs over the five-year period, we believe that some of the 'wash out' effect was generated by the measures that we used to assess children's performances and behaviours. This belief was confirmed by the subjective impressions that we received within the classrooms. The children who had attended the preschool programs still appeared to be highly motivated towards school activities and appeared to be more task-oriented and independent in their classroom behaviours at the end of Year 1 than were the non-preschool children. It is unfortunate that the instruments used to assess children's performances in this study did not include any reliable or valid means of assessing children's social-emotional development and motiviatonal states. These may well be the areas [illegible] preschool programs have their greatest impact. For quite appropriate reasons at the developmental stage of the Project's activities, it was decided that the existing instruments available to assess performances and behaviours in these areas were too unreliable and possessed doubtful validity. Clearly the development of effective measures in these areas for children under six is a matter of concern.

One point that is worth mentioning is that there may be specific groups who benefit from preschool attendance but whose performances are hidden when data are aggregated. For example, in a number of analyses featured in chapter 8, it was noted that on several measures the mean group performances of the ex-preschool girls tended to be higher than those of the non-preschool girls at the end of Kindergarten and Year 1. Clearly trends such as these need to be analysed in greater depth in longitudinal studies.

Another important issue that emerges from the analyses is that there are different outcomes associated with the implementation of the different programs. By and large, the differences were along the lines predicated by the specific objectives of the different programs. It would appear that devoting extra emphasis and time to particular curricular areas will affect children's acquisition of knowledge and skills. We believe that, from the experience we gained in developing the programs, we could develop new programs which would achieve specific objectives through the careful organization of specific parts or through accentuating the practices followed in a particular program. (In the Behaviourist Program, for example, the results given in chapter 8 indicate that the concentration that this program gave to teaching basic skills resulted in overall higher mean group performances on the school achievement measures used in the evaluation, for the children attending this program.) Such an approach would allow educationists to develop programs to achieve the aims sought by teachers and parents in schools with particular characteristics. There is nothing new in advocating the development of curricula that reflect the immediate needs of schools, for school-based curriculum development endeavours to do this. What we do believe is that we have acquired the knowledge and skills to develop particular programs to match immediate needs, without the schools having to go through the oft-repeated exercise of 're-inventing the wheel'. Ideally, schools could use this approach to determine their aims and intended practices and seek assistance in formulating teaching/learning strategies that would achieve such outcomes.

It must also be emphasized that the measures used to assess performances at the end of Kindergarten and Year 1 may have unduly reflected the emphases of particular programs at the expense of others. House et al. (1978) claim in their critique of the Follow Through evaluation that a number of the achievement tests in that project directly assessed areas that were emphasized by some programs, while ignoring other areas that were featured by other programs. Obviously some instruments used in this study were biased towards some programs, in spite of our endeavours to ensure that the measures we used reflected the curricular emphases of each of the different programs. The different results obtained by the conceptual mathematics tests compared with those obtained by the curriculum-based mathematics tests highlights the potential of such instruments in assessing the performances of children in particular programs. It is suggested that evaluators attempting similar studies would benefit from the development of instruments similar in style to the conceptual mathematics tests used in this study.

One issue meriting investigation in future studies is that of the relationships between the process variables and the learner outcomes in the preschool classes. Generally, studies which have analysed such relationships have reported low percentages of variance that are uniquely attributable to process variables. Such studies (cf. for example, Stallings, 1974), which were based on data collected from children in higher grades of the school, claimed that the initial abilities of the children, together with other background variables, accounted for a larger percentage of the explained variance than did process variables. Initial analyses linking process/product data using communality analyses were attempted during the data analyses. However, because of statistical problems these data are not reproduced in this book. The initial findings from these analyses indicated that a large percentage of the explained variance was attributable to the process variables recorded by PROSE. Given that the percentage of explained variance calculated in these analyses capitalizes to some extent on chance, it is an area that clearly merits further study. The difficulty in guiding future research from such findings is that it is not always possible to determine whether the different process variables were those which the teacher could directly control or influence, or whether the global techniques used in the analyses hide the important contributions of individual variables.

The results of this study have further implications for the policy makers, educational administrators, teachers and parents who might be considering developing educational programs for disadvantaged children. The following statement is aimed at educationalists and it summarizes what we consider to be the main implications of the study, and attempts to present specific suggestions for each of the above groups in order to guide future policy initiatives. (It must be remembered that these suggestions should rightly be applied to schools that have characteristics similar to the Mt Druitt schools.)

Educational administrators can introduce/continue early childhood programs with the firm expectation that quality programs can

- give preschool children a significant initial advantage over non-preschool children in the critical areas of conceptual development, pre-reading, mathematics, vocabulary and social abilities;
- be effectively integrated into the life of a primary school;
- provide an effective and enjoyable means of fostering parental involvement in schools;
- achieve different outcomes through the implementation of different curricula;
- meet the expressed needs of the majority of parents for educational programs for four-year-old children;
- be effectively introduced into homes with results that are nearly equivalent to those obtained by centre-based programs.

School principals can expect that through the introduction of quality early childhood programs

- preschool children will obtain significant advantages over non-preschool children in a number of important school-related areas;
- different programs with different objectives will, if correctly implemented, achieve different outcomes;
- quality programs will be beneficial to all children regardless of ability levels;
- the introduction of different programs will require comprehensive personal and resource support;
- teachers can be trained to implement different programs with a high degree of fidelity to stated objectives, in schools that receive normal resource allocations;
- parents will appreciate the opportunity to be closely involved with schools and that this initial enthusiasm can be continued in the higher years;
- preschool teachers, because of their different teaching hours, may feel isolated from the mainstream of school life; and
- the greatest gains can be achieved if the educational programs are effectively linked with the home.

Teachers can expect that the introduction of quality early childhood programs will

- benefit educationally disadvantaged children in academic and social areas;
- lay the foundation for later success in school-related achievement; and
- provide an effective means of linking school and home.

Parents can expect that the introduction of quality early childhood programs will

- provide substantial benefit to disadvantaged children in the important areas of children's cognitive, emotional and social development;
- provide them with a means to become effectively involved in schools;
- meet other than educational needs, if a range of support structures are provided; and
- reinforce the important roles that families play in the education of their children.

The Project's Impact

It is not always easy for insiders to comment upon the short- and long-term impact of a project such as this, but we can evaluate whether or not we achieved our goals.

The first of the Project's goals was concerned with the provision of educational environments that would help the children develop their physical, intellectual and social abilities. The assumption behind this objective was that the environments prevailing in the Mt Druitt area were not the most supportive for children judged to be educationally disadvantaged. As noted in chapter 1, the physical environment of Mt Druitt appeared to be almost luxurious when compared with the extreme disadvantage experienced by families and children in other parts of the world. However, when compared with the environments prevailing in Australian homes and schools, the children in Mt Druitt were, and still are, relatively disadvantaged. One of the roles that we accepted was to try to develop learning and school environments that would facilitate children's physical, educational and social development.

The data presented throughout this study indicate that, when the programs' activities and outcomes are compared with the criteria that we established to achieve this goal, the Project did help children in the area. The comparisons made among the different groups suggest that the ex-preschool children benefited in a number of ways, and the data suggested that the programs *were* able to achieve the Project's first goal. Unfortunately, it was not possible to sustain this initial impact, and a number of explanations for this have been advanced. All of the Project's programs contained the key determinants of educational programming that can affect children's learning—including a clear specification of goals, the appropriate matching of goals and learning experiences, the detailing of formative and summative evaluation procedures, the involvement of teachers in all aspects of curriculum development and the monitoring of the processes in the classroooms, and above all a willingness to be self-critical, to experiment and to change when things did not go right. The theoretical bases that influenced the development of the programs were important to us in guiding the development, implementation and evaluation stages of the Project.

We believe that the Project developed programs which provided positive learning environments. The crucial roles played by the teachers and parents, and the support provided by the program assistants in achieving this goal, have been stressed throughout this study and do not need further repetition here.

The second of the Project's goals concerned the involvement of parents in their children's education and in their schools. Parental attitudes towards this goal were summarized in chapter 7 and it was true to state that, at the beginning of the Project, parents paid little attention to their potential roles in their schools. This attitude was partly influenced by other pressures within their homes, by the lack of an effective model within NSW schools for such involvement, and by the schools' attitudes to parents. The majority of the schools considered parental involvement a worthwhile goal but did not always actively pursue it. By and large, at the beginning of the Project the involvement was on the schools' terms and conditions, and parents played peripheral roles in school decision-making. In terms of the status quo in the majority of schools, there was nothing unique about this situation.

When the Project started we went out of our way to encourage parents to become involved in the programs and to take active roles in decision-making. As mentioned in chapter 7, some teachers were more comfortable about encouraging this role than others, but they all tried to do so. The Home-based program, because of the nature of its activities, was more successful in encouraging parental involvement than were the other programs. The number of parental activities markedly increased, once parents saw that they could take active roles in the programs. At the same time, each of the programs tried different strategies to link school activities with the home and to extend the learning environment beyond the four walls of the classrooms. The success or otherwise of these attempts was determined by the enthusiasm of the parents and by whether they saw that they had a role to play in the educative process. Some school administrators for their part were sometimes slightly suspicious of the initiations that were taken in this regard, and many often commented that they did not want the decision-making processes in their school taken over by the 'malcontents' among some of the parents. However, the majority did their best to facilitate parental involvement in schools.

Progress in school-community relations continued over the years and a number of very useful developments occurred. It soon became apparent that the Project's personnel played a key role in this process. They were viewed by parents as 'neutral' participants and, when friction occurred between parents and the teachers, the parents believed that they could turn to the program assistants for support. Whether that perception was right is another matter, but it did become apparent that, when the Project started to withdraw its support in 1979, the level of parental involvement declined. Many parents commented that they were no longer as motivated to become involved in school activities as they had been. To determine whether that 'drop-off' was a result of the Project's withdrawal from the area or was caused by the traditional lack of interest shown towards schools by Australian parents as their children become older is a difficult task.

In terms of achieving our goal, we believe that we achieved a reasonable degree of success in this area while we were pursuing our activities in the schools, but that we did not build support structures that would have then enabled schools and parents to capitalize upon initial developments.

The third of the Project's goals was concerned with attention to the children's health and other needs through active involvement with relevant local agencies. In this regard the Project was helped tremendously by the continuous and effective support of the different welfare bodies within the area. In particular, the staff of the Mt Druitt Polyclinic and the community nurses within the schools provided tremendous support to the local schools, parents and children. The greatest benefit to the children's development that the Project could provide was to help in the early identification of children with potential medical and/or educational problems, and to refer these children to the appropriate agencies for attention. In many ways this role was one of the strengths of the Home-based Program since those teachers were able to draw upon their knowledge of the potential support systems available, and to show parents how they could use these agencies for help and guidance. This was one aspect of the Project's activities which we believe was very effectively carried out.

A specific aspect of this third goal was attention to the children's nutrition. We assumed that there would have been a number of children and families in the area who could have been classified as undernourished. Yet, as the nutritional data presented in chapter 5 indicate, the children did appear generally to have acceptable nutritional intakes. We suspect that the way in which the study was carried out masked some of the real nutritional deficiences found in the area. This should not be seen as a criticism of this type of study, or of the people who undertook the survey. Rather, when we attempted to establish a thorough nutritional study, we were confronted with innumerable practical problems ranging from the closure of the analytical laboratories selected to make the initial test, to the resignation of key personnel in the institution who had originally initiated the study. Had this original study been carried out, we believe that we would have gathered comprehensive data which may have supported our original hunches.

The fourth goal was directed towards the continuity of the programs through the upper years of the schools. Compared with the others, this particular goal was much easier to attain. As earlier chapters have shown, the Project staff and the teachers were able to develop comprehensive programs and to ensure that these were continued into the upper year levels. The interesting finding from this study was that the continuity of programming did *not* overcome the 'wash out' of the advantages acquired by the children who attended preschools. We believed at the beginning of the Project that the powerful effects that could be generated by continuity of programming could overcome, to a large extent, the 'wash out' effect reported in the studies cited previously. As the data indicate this was not to be the case and the reasons for this result are difficult to determine. However we did provide extensive guidance to help the schools achieve maximum continuity of planning over the two years following the preschool years.

The fifth of the Project's goals was concerned with the evaluation of the five different programs developed and implemented by the Project. Within this goal there were a number of supplementary goals that were detailed in chapter 5. The reader is the best person to judge whether or not this goal was achieved, but it must be stated at this point that sufficient information has not been included in this study to enable the reader to determine whether the last of the supplementary objectives (the specification of the administrative, fiscal and educational steps to be taken to ensure the effective functioning of the five programs) was achieved. The reason that further data on this issue were not included was primarily one of space.

The difficulty of assessing and evaluating all of the desired outcomes has been stated throughout this and previous chapters and many of the points do not require repetition. On reflection, it could be said that we tended to be conservative in some of our evaluation activities. To some extent this conservatism was influenced by our belief that if we were to spend hours developing, testing, and eventually administering tests, we had to be sure that they *were* valid measures of the area or behaviours that they purported to measure. One thing that did change over the years was our attitude towards the whole process of evaluation of early childhood educational programs. We thought that we could avoid the pitfalls that had affected many of the previous studies, and to some extent we did. However, we were forced to acknowledge the resilience of many of the problems that bedevil evaluators in this field of education.

On the whole, we felt that at the end of the Project we had achieved many of the goals that we set for ourselves and, most importantly, that we had contributed to the existing knowledge about the provision of early childhood programs for disadvantaged children in Australia. In many ways one of the ultimate tests of whether we achieved our own goals is to decide whether we would adopt the same processes again—in retrospect, we probably would have, given the same administrative and resource limitations.

The Way Ahead

The study has shown that it is possible to develop, implement and evaluate a number of different early childhood programs to assist educationally disadvantaged Australian children within the public school setting. Beyond this, two main ideas, which should be stressed at this point, have emerged from the study.

First, school failure should be thought of as a cumulative phenomenon (see, for example, Brookover et al., 1979) whereby disadvantaged children find themselves being increasingly penalized because of their home backgrounds. The provision of quality early childhood programs is one way of trying to provide such children with a start to their schooling career that can be quite beneficial. Yet the provision of such programs cannot of itself assist disadvantaged children. Schools need to rethink their existing practices in order to draw on all the resources they have at their command. It is no longer useful for schools to consider that the only way to overcome educational disadvantage is by providing intensive educational programs. The problem must be viewed from a wider perspective and the school must take every opportunity to involve the home and the community in the development of their programs. Further than this, the schools should attempt to devise ways that will allow learning to be viewed as an entity in which all educational institutions, schools and homes have important roles to play. Such an approach requires a rethinking of the methods traditionally used to train teachers in their preservice and continuing education courses. It is not realistic to expect that teachers will develop such roles for themselves or that all teachers will want to pursue an active involvement with the community. Some will, and it is these teachers who should be encouraged to initiate new programs. Educational administrators for their part should rethink and adjust the administrative support and regulations that guide teachers in their roles, since the existing practices do not facilitate the development of programs such as those envisaged.

Second, and as important as the notion of school failure as a cumulative phenomenon, is the need to reconsider what constitutes success in an educational environment. If schools do rethink their priorities and develop programs which are based on the perceived needs of the communities they serve, and which involve the active participation of parents and the wider community, then they may come to grips with the problem of what constitutes 'success' for their children. At the present moment some schools are attempting to develop worthwhile curricula for disadvantaged children. The best attempts are being made in schools which are redefining the parameters within which they operate. Moreover, these schools are asking questions such as 'Should schools be primarily concerned with the development of academic skills or should they attempt to develop alternative ends?', 'Are there ways of educating children that will reinforce their own self-esteem?' and 'How can schools develop new curricula that are not replicas of the prevailing hegemonic curriculum?'. The answers to such questions need to be found if educationally disadvantaged children are to be helped, for one of the many things that we have learned is that the crucial mediating factors that encourage disadvantaged children to do well in the traditional school curriculum are those concerned with interpersonal and motivational issues. As we observed the same cohort of children over the three years, we were often in agreement that the most 'successful' children in school tended to be those who were interested in the ongoing processes and who were supported by their families. While there is nothing new in such an observation, we believe that schools should consider re-assessing their priorities and practices in order to develop interactive approaches to the education of disadvantaged children which would involve schools, parents and the community equally.

If future program developers, educational administrators and teachers were to start from a consideration of these two issues, we believe that a lot could be done to help the educationally disadvantaged in areas such as Mt Druitt. Governments for their part must realize that such developments take time and must be prepared to devote the necessary resources to the achievement of such a goal.

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APPENDIX A

DESIGN OF THE PROSE OBSERVATIONAL STUDY AND ASSOCIATED TABLES

PROSE Categories

PROSE enabled data to be collected on individual children and these data were aggregated to represent program process data. PROSE requires the recorder to observe whether the 'target' child is interacting with adults, peers or is alone. Once this determination is made the recorder has to follow one or three different 'tracks'. For example, if the child is interacting with an adult 'Track 1' with its attendant categories in Figure A-1, is completed on the PROSE record form. If the child is interacting with another child or is alone 'Tracks 2 or 3' respectively are completed on the record form. Thus the completion of one of these three 'tracks' on the statement side of the PROSE record form presents data on child/adult, child/child or child alone situations in the classrooms. Specific information about the child's, adult's or peer's roles and/or activities is recorded as well as the purpose and the quality of the child's activities. Finally data are recorded showing whether the activity the child is engaged in is child or teacher structured.

After the successive completion of five of the above 'tracks' comprising a cycle of observation, the recorder then notes on the opposite or context side of the sheet, whether the child's interactions are in free or in instructional time, the curriculum area the child is involved in, the size of the group or class, the child's relative placement within the group or class and the adult's predominant roles during the coding period of the cycle. During each observational session three cycles of data are collected on each child representing fifteen different statement 'tracks' and three sets of context data.

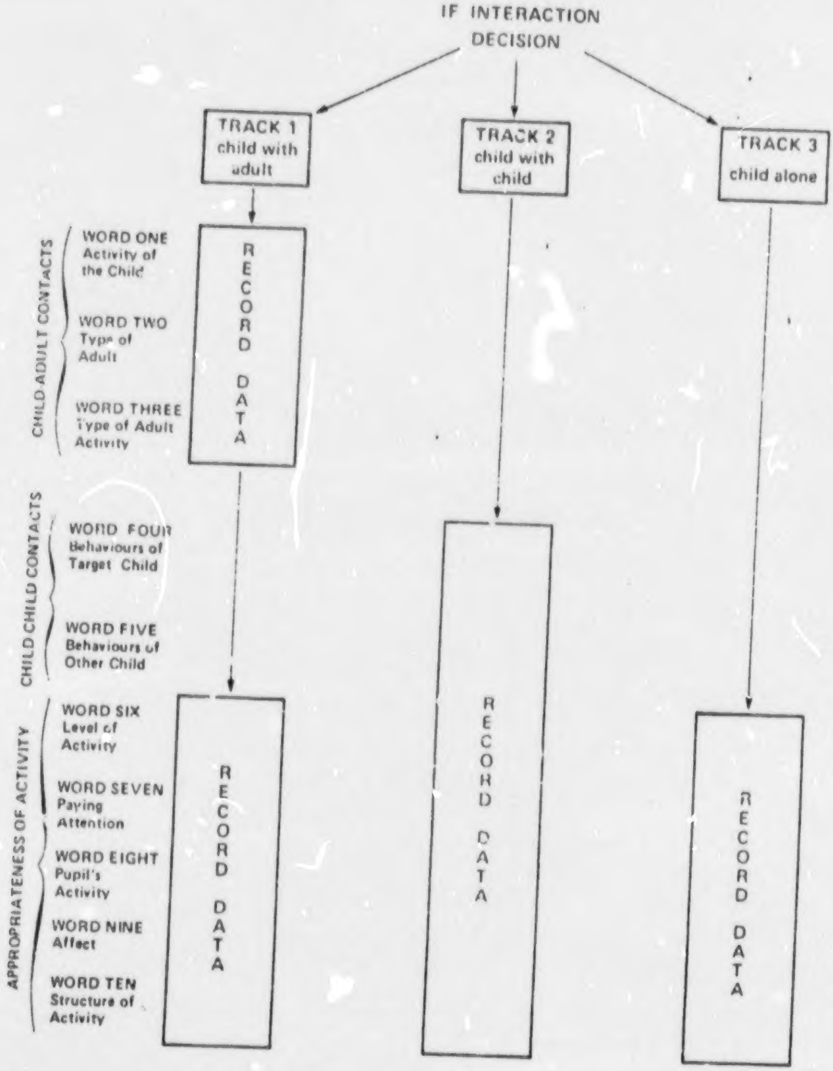
IF INTERACTION DECISION
TRACK 1 child with adult
TRACK 2 child with child
TRACK 3 child alone
CHILD-ADULT CONTACTS
WORD ONE Activity of the Child
WORD TWO Type of Adult
WORD THREE Type of Adult Activity
CHILD-CHILD CONTACTS
WORD FOUR Behaviours of Target Child
WORD FIVE Behaviours of Other Child
APPROPRIATENESS OF ACTIVITY
WORD SIX Level of Activity
WORD SEVEN Paying Attention
WORD EIGHT Pupil's Activity
WORD NINE Affect
WORD TEN Structure of Activity
RECORD DATA
RECORD DATA
RECORD DATA
RECORD DATA

FIGURE A-1 DECISION MAKING PROCEDURES WITH PROSE STATEMENT SIDE

Recording Procedures used with PROSE

PROSE data represented a sample of the behaviours or selected children in each program classified into the specified categories on the PROSE recording sheets. During the sessions (either the AM or PM sessions in the preschools or the morning or afternoon sessions in the other grades), the number of children present in the session on whom data are to be collected was determined. This number was multiplied by three and divided into the number of minutes in the session. The quotient represented the times when observation data on a specific child were recorded. For example, if eight selected children were present in a preschool twenty-four was divided into 150 minutes (representing the total teaching time in a preschool session) yielding a quotient of 6.25. Thus, the first observation commenced at the beginning of the session and each subsequent observation commenced 6.25 minutes after the beginning of the previous observation. By so doing the range of interactions and activities present throughout the session was sampled.

The major unit of observation for each child was called a "cycle" and one cycle consists or five events each signalled by a timer at 25 second intervals. Each "cycle" represented a time span of 100 seconds and the activities the target child engaged in during this period were recorded into ten major categories or "words" on the statement side of the form. Each word contained several minor categories defining the type and quality of the interacctions the target child was engaged in. Only one category was marked for each word, except for category six, which was multiply coded. If none of the categories within a word applied to the event observed, the observer left that word completely blank for that event.

PROSE thus recorded on the statement side of the record sheet whether the child interacted with an adult or other children, or was by him/herself. After the first cycle was coded on the first child 'A', the context side of PROSE was recorded. The context side defined the location of the activities, the events that occur in the classroom and the predominant role of the adult(s) (if any), observed during the first and last event recorded within the cycle.

Once both the statement and context sides for the first cycle were completed on child 'A', the observer recorded the behaviours and events of child 'B' for the first cycle and proceeded to observe and record the behaviours of the other children until all the selected children were observed. After the first cycle was recorded for all children, the behaviours and events of the children were recorded on the second and third cycles. The recorded behaviours and events reported in the three cycles were judged to be representative of the relative frequency of events occurring over the session classified into appropriate categories.

Weaknesses in the design of observational systems can reduce the reliability of the data. Especially is this so when the system incorporates highly inferential categories. PROSE categories are relatively obvious for the observer to use and assume an unsophisticated knowledge of classroom procedures by the observers. The training procedures followed provided ample opportunity to eliminate ambiguities that occurred during the practice sessions.

Continued use of PROSE by the observers did not highlight problems associated with the descriptors used to define the various categories within the PROSE words

Observer Assignment for PROSE

Medley and Mitzel (1958) show how it is possible to increase the reliability of the data collected in an observational study, by increasing the number of observations made rather than increasing the number of observers. Consequently in this observational study the emphasis was placed on gathering data based on numerous observations by a small group of trained observers rather than having a large number of observers collect data on fewer occasions.

Process data were collected over a four week period in each of the three years of the Project. The observers were rotated among the programs to observe different sessions following a counterbalanced observational design. Each program was visited by the observer an equal number of times. The only variations to this schedule occurred when observers had to revisit programs to observe children who were absent when the original observations were collected.

To establish inter-rater reliability each possible pair of observers was scheduled to observe the different sessions at each program on different occasions. During the reliability data collection periods the observers recorded the interactions of the targeted children simultaneously, yet from independent positions within the classroom. These reliability observational sessions were additional to the observations recorded on individual assignments.

Validity of PROSE Observational Data

It was essential to establish the validity of the data recorded by PROSE if any trust was to be placed in subsequent data analyses. Validity has been defined as the extent to which the measure used "measures what it purports to measure" (Anderson, Ball & Murphy, 1975:458). As the PROSE data were observational it may be thought that such data were inherently more valid than more indirect measures. However, recording observational data required raters to make translations of what was observed or heard to the categories defined on the record. Unfortunately, given the existing knowledge we have on human perception, it is evident that differences in recording the same behaviour and event can occur and these differences can lower the validity of the data collected by the instrument. The only feasible method of reducing different rater perceptions using PROSE was to provide extensive training in collecting PROSE data, hopefully minimising differences in inter-rater perceptions of the same event.

Cronbach (1971) indicated that content and construct validity are the appropriate determiners of the validity of an observational instrument. For PROSE this meant establishing that the recorded dimensions were the relevant and important ones for the programs.

PROSE represented a biased sample of behaviours and events arranged into categories enabling the recording of interactions and environmental conditions. The categories were based on the statements of the objectives and teaching practices in each program so the recorded data represent the frequencies of occurrence of specified behaviours and events. To determine whether the recorded data were the relevant ones in terms of

i) the actual behaviours and events in the classroom and

ii) the important dimensions of each program,

two procedures were followed.

First, video-tapes of the activities in the classrooms were made and the data recorded by the trial versions of PROSE were compared by external raters with the behaviours recorded onthe video-tapes. Where discrepancies occurred additional external raters were involved to clarify the point(s) at issue on the PROSE form or if necessary the descriptors were modified to accommodate the discrepancies. This process of clarification took place over a six-month period. Second, check lists describing the essential dimensions of the programs were prepared and the data recorded by PROSE examined to see whether these dimensions were recorded by PROSE. Where necessary, modifications to PROSE were made. When the 'final' version of PROSE was made, external raters with an intensive knowledge of the programs were asked to observe the classrooms' activities and relate their live observations to data simultaneously recorded by PROSE. To provide across check, video-tapes of the activities being observed were made and used for later reference. All raters reported high agreement between their observations of the observed activities and the data recorded by PROSE.

To summarise, it is believed PROSE is a valid observational measure of the behaviours and events occurring in the three preschool programs, exhibiting high content and construct validity.

Reliability of PROSE Observational Data

Reliability of a measure establishes that it "provides consistent and stable indications of the characteristics being investigated" (Anderson, Ball & Murphy, 1975:325).

Frick and Semmel (1978) claimed there were two statistically related but conceptually different indices which must be considered in establishing reliability of observational data. These are observer agreement coefficients and reliabilty coefficients.

They continue

> It is generally agreed that adequate reliability of a measure is necessary but not sufficient for determining its concurrent or preditive validity. Analogously, observer agreement is a primary, but not the most crucial, issue in the interpretation of results of observational studies. More important are the reliabilities of the measures of the subjects of the observation ... Observer disagreement is important insofar as it acts as a limiting factor on reliabilities of observational measures. (1978:159)

As the PROSE data were to be the major group of process data collected by the Project it is important to ensure the observational data were reliable. Since it is believed that the design of the observational study outlined controlled for many of the factors affecting poor reliability, the following discussion is concerned with procedures followed to establish observer reliability.

a)

The observers were trained against video-taped examples of behaviours in the three preschool programs. Discussions and clarification of divergent codings made by the observers during the procedure were undertaken. The codings of the observers on these video-taped segments were compared until completed agreement on all non-ambiguous taped examples was attained. On video-taped segments containing some ambiguous behaviour examples the coefficient of agreement was set at 85% or above for word three of PROSE. This figure was chosen forword three as this is the word which created the most confusion amongst observers using the present version of PROSE. However, it is important to remember as Medley and Norton note (in Frick & Semmel, 1978:189), disagreement on ambiguities may reflect a more accurate representation of the real world.

b)

The training on the video-taped examples using criterion related performance standards, was continued over several days. This enabled intra-observer agreements on the same video-taped examples to be calculated. Scott's (1955) coefficient estimating the extent to which chance agreement has been exceeded when two sets of observers' scores are compared, was calculated to determine intra-observer reliabilities.

Scott's coefficient:

$$\pi = \frac{Po - Pe}{1 - Pe}$$

where

$Po = \frac{1}{N} \sum_{i=1}^{C} n_{ii}$ = nominal agreement for C categories (C > 2)

and

$Pe = \sum_{i=1}^{C} P_i^2$ = chance agreement for C categories

(+)

where P is the proportion of tallies made by all observers for all ith category. Intra-observers coefficients over three days on the same video-taped examples are shown in Table A-3. The discrepancies reported in Table A-3 referred to differences coded in word six of PROSE which may be multiply coded. The reliability coefficients were considered acceptable.

c)

The data recorded were monitored during the data collection period and intra-observer reliabilities calculated to ensure the reliability levels in Table A-3 were maintained.

d)

Inter-observer reliabilities on both statement and context sides of PROSE using Cohen's *kappa* (Cohen, 1960) are shown in Table A-4. Conen's *kappa* was chosen for the determination of these reliabilities as it makes no assumptions that marginals are symmetrical and proportional to known population marginals.

$$\kappa = \frac{Po = Pe}{-Pe}$$

where

$Po = \frac{1}{N} \sum_{i=1}^{C} n_{ii}$ = nominal agreement for C categories (C > 2) and

$$P_c = \frac{1}{N^2} \sum_{i=1}^{c} (N_{i+}) \quad (n_{+i})$$

The calculations reported in Table A-4 were based on the following units of analysis

STATEMENT SIDE Adult-Child - PROSE Words 1,2,3,6,7,8,9,10

Child-Child - PROSE Words 4,5,6,7,8,9,10

Child Alone - PROSE Words 6,7,8,9,10

CONTEXT SIDE ALL categories combined

It can be seen from Table A-4 that inter-rater reliabilities are quite high.

Organisation of the PROSE data

Previous paragraphs summarised the recording procedures associated with PROSE. The recorded data from the statement side of PROSE were summed over the three cycles of observations and this summation represented the total recorded behaviours of the target child during one observational session. All of the summed observations within the classes in each program were then aggregated to provide program process data for each specific year. A similar procedure was followed for data recorded on the context side of PROSE.

Principal component and varimax rotated factor analyses were performed on the PROSE variables in order to verify the PROSE recording procedures. Variables that were not coded, had responses less than one percent of the total responses for that word or category, or which had no variances were discarded from the analyses. The varimax rotated factor structures for the PROSE variables are presented in Tables A-5 and A-6. Examination of these factor structures confirms the intended recording patterns of PROSE. For the statement data the first factor, accounting for between 20 and 24 percent of the total variance, is bipolar with two sets of variables discerned. The first recorded the predominant teacher/child interactions structured by teachers, while the second represented the children's interactions with their peers. The variance accounted for by the second, third and fourth factors ranged from 6 to 19 percent of the total variance. The loadings on these factors represented the children working alone on activities, their use of materials and their levels of activity. Interpretation of the factor structures for the *context* data is not easy as the highest loadings predominantly refer to group size and the teachers' roles within the classrooms. As the various categories on the *context* side may be multiply coded, it is believed that the wide disbursement of tallies for the *context* categories contributes to the low loadings presented in the factor structures on Table A-6. Slight changes in the factor loadings over the three years reflect the addition of new variables to PROSE and different classroom emphases and practices.

Discriminant function analyses of PROSE data

One way of analysing the PROSE data to show how differences occurred among the programs is to use a multivariate research procedure, discriminant analysis (Cooley & Lohnes, 1962; Rao, 1965). As a multivariate procedure, discriminant analysis can be used to:

separate data into various groups by determining significant differences of group centroids;

discriminate groups with respect to various dimensions and to (discriminator) variable contribution to separation;

estimate the interpopulation distances between the centroids and degree of relationship between the response variables and group membership, and

> *classify*, by setting up rules to assign an individual to one of the predetermined populations.
> (Huberty, 1975:545)

Discriminant analysis enables discriminant functions to be generated from the set of classroom variables. These discriminant functions may be considered as major dimensions on which the various programs are distinguished. Within each function, the relative magnitude of the discriminant function coefficients can be used to "name" the function by identifying the predominant characteristic associated with them, in a way analogous to the "naming" of factor structures in factor analysis techniques. The discriminant function scores for all observations for each program can be averaged, and the group mean or centroid locates the program in the multi dimensional space defined by the discriminant axes.

The procedure assumes multivariate normality and homogeneous within group covariance matrices though Nie *et al* (1973:435), claim these assumptions need not be strongly adhered to. Consequently as PROSE variables have non-normal distributions, the use of discriminant analysis should be considered as a heuristic exercise to try to highlight the differences among the programs.

To analyse the PROSE data all the responses on the *statement* and *context* sides were examined. Variables not coded, with frequencies less than one percent of the total responses for that word or category, were discarded for subsequent analyses. As well, variables with no variance were also deleted from the analyses. This is not to suggest that variables without variance are not informative for descriptive purposes; rather, they were not useful for this particular analytic procedure.

Analyses of the within groups correlational matrices revealed low correlations between the variables. The only exceptions to this procedure was the retention of the two variables VERBAL and MATERIAL + VERBAL in Word Six of the statement side. These variables were retained for conceptual reasons as they refer to important dimensions. The means, standard deviations, and univariate F-ratios for all the retained variables on the statement and context sides are shown in Tables A-7 to A-10. All these variables were analysed by using the S.P.S.S. sub-program Discriminant (Nie et al, 1975) using the direct method of discriminant analysis.

The eigen values, the relative percentage of the total discriminating power in each discriminant function and Wilks Lambda for the statement and context variables for each year, are presented in Tables A-7 - A10. The relative magnitude of the eigen values and their corresponding percentage of total discriminating power indicates the relative strength of the associated discriminant functions to distinguish among the programs.

Discriminant analysis calculations were separately performed on the statement and context data sets.

Examination of Tables A-7 to A-10 for the three data sets indicates that considerable discriminating power exists in the variables used in the analyses. The preschool data set indicates that overall 76 percent of the variance is associated with the three functions (Wilks Lambda = .24) with the first function accounting for 56 percent of the variance, the second function 31 percent and the third function 13 percent of the total disciminating power. Three functions in the Kindergarten statement data accounted for 91 percent of the variance (Wilks Lambda = .09) with the first, second and third functions having respectively 45,32 and 23 percent of the total discriminating power. The Year One data indicated that 95 percent of the variance was associated with the three functions. However, unlike the situation in the two previous data sets where there was some equality in the contributions of each of the functions to the overall variance with the Year One data, the first function contributed 85 percent of the total discriminating power, with the two remaining functions each contributing 10 and 5 percent respectively.

In the discussion in Chapter Six the three functions for the preschool and Kindergarten data are analysed but only two functions are presented for the Year One data, owing to the relatively small percentage of variance associated with the third function for that data set.

TABLE A-1: PROSE Statement Observations Recorded in the Four Programs on Selected Sample of Children Expressed as Percentages[1]

Variables	Description of Variables	PROGRAMS Cognitive			Competency			Contemporary			Behaviourist		
		P	K	Yrl	P	K	Yrl	P	K	Yrl	P	K	Yrl
No interaction		[illegible]	0	0	0.17	0	0	0.30	0	0	0	0	0
WORD 1													
No observations		(38)[2]	(41)	(58)	(39)	(50)	(45)	(59)	(58)	(82)	(55)	(16)	(23)
Init	Child initiating with adult	1	1	1	1	1	1	2	1	1	1	-	1
Star	Child receiving adult's attention	8	3	4	[illegible]	5	2	6	4	6	9	4	4
Part	Child is part of a group	52	53	37	52	44	51	32	37	19	33	80	76
LSWT	Listening/watching	1	2	-	1	-	1	1	-	1	-	-	-
Resist	Child resists contact with adult	-	-	-	-	-	-	-	-	-	-	-	-
WORD 2													
No observations		(38)	(41)	(58)	(39)	(50)	(45)	(59)	(58)	(82)	(55)	(16)	(23)
Teacher	Teacher in charge of the class	30	50	37	41	42	55	21	38	11	24	79	76
Aide	Adult aide	2[illegible]	1	2	19	-	-	10	-	-	13	-	1
Other	Other adults	8	8	3	1	8	-	6	4	7	8	5	-
WORD 3													
No observations		(38)	(41)	(58)	(39)	(50)	(45)	(59)	(58)	(82)	(55)	(16)	(23)
Positive	Adult is giving positive attention	2	2	2	3	1	3	1	2	1	7	4	4
Reinforce[3]	Adult is giving contingent response	-	-	-	-	1	-	-	1	-	-	3	2
Permissive[3]	Adult is offering choice	5	-	-	4	-	-	2	-	-	1	-	-
Instruct[3]	Adult is giving task instructions	-	4	3	-	7	3	-	3	1	-	6	11
Show/Tell	Adult is showing some material or telling about it	15	12	11	14	7	16	13	8	4	18	11	16
List/Watch	Adult is listening to or watching child	6	13	9	17	10	11	11	12	5	8	14	14
Discuss	Adult is engaging in mutual dialogue with child	13	2	1	10	1	1	3	1	1	7	3	3
Question	Adult is questioning child	6	5	6	4	4	8	3	6	-	1	-	[illegible]
Peer	Adult is performing some activity with child	10	1	1	3	1	-	4	-	-	3	-	1
Lead[3]	Adult is leading activity with children	-	6	1	-	1	3	-	1	-	-	8	8
Resource[3]	Adult provides information/ materials	-	5	3	-	4	-	-	2	3	-	11	-
DO4[4]	Adult is performing some activity for child	4	-	-	6	-	-	3	-	-	2	-	-
Housekeep[3]	Adult is putting away/giving out materials	-	-	1	-	2	1	-	-	-	-	2	3
Manage	Adult is attempting to manage positively	1	6	4	-	8	8	1	4	1	-	12	9
Admin[3]	Adult is doing administrative chores	-	1	-	-	2	-	-	-	-	-	1	-
Distract[3]	Adult's attention has been distracted	-	2	-	-	1	1	-	1	1	-	1	2
Negative	Adult is indicating inappropriate behaviour(s)	-	-	-	-	-	-	-	1	-	-	-	-
WORD 4													
No observations		(77)	(74)	(78)	(78)	(68)	(92)	(64)	(72)	(71)	(70)	(84)	(97)
Aggressive	Target child is aggressive to another child	-	-	-	-	-	-	-	-	-	-	-	-
Init	Target child is initiating action toward another child	2	7	1	1	-	1	3	7	3	2	2	-
Coop	Target child is co-operating with another child	21	19	21	20	32	6	33	21	26	27	13	2
Withdraw	Target child is withdrawing from another child	-	-	-	-	-	1	-	-	-	1	-	-
Resist	Target child is resisting another child	-	-	-	-	-	-	-	-	-	-	-	1
Ignore	Target child is ignoring another child	-	-	-	1	-	-	-	-	-	-	-	-
WORD 5													
No observations		(77)	(74)	(78)	(78)	(68)	(92)	(64)	(72)	(71)	(70)	(84)	(97)
Aggressive	) Same as for previous word	-	-	-	1	-	-	-	-	-	-	-	-
Init	) but applies to other child	1	3	1	2	-	1	2	4	4	1	2	1
Coop	) in interaction	22	23	21	18	32	[illegible]	33	24	25	28	14	2
Withdraw	)	-	-	-	-	-	1	-	-	-	-	-	-
Resist	)	-	-	-	-	-	-	-	-	-	-	-	-
Ignore	)	-	-	-	1	-	-	1	-	-	1	-	-

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TABLE A-1: PROSE Statement Observations Recorded in the Four Programs on Selected Sample of Children Expressed as Percentages[1]

Variables	Description of Variables	PROGRAMS Cognitive			Competency			Contemporary			Behaviourist		
		P	K	Yr1	P	K	Yr1	P	K	Yr1	P	K	Yr1
WORD 6													
No observations		(0)	(6)	(8)	(0)	(4)	(8)	(0)	(12)	(5)	(0)	(5)	(4)
Verbal	Verbal interaction	43	23	11	46	10	17	49	23	5	54	21	22
Non Verbal	Non-verbal interaction	3	1	-	3	1	1	2	1	1	2	-	-
Verbal and non verbal	Verbal and non-verbal interactions	-	1	-	1	-	-	-	-	-	-	2	23
Material	Interaction with material(s)	49	15	29	46	26	31	45	25	50	41	14	51
Mat. and verbal[3]	Material and verbal interactions	-	42	[illegible]	-	50	42	-	47	38	-	55	-
Mat. and non-verbal[3]	Material and non-verbal interactions	-	7	-	-	1	1	-	1	-	-	-	-
Mat., verbal & non-verb.[3]	Material, verbal & non-verbal interactions	-	-	-	-	-	-	-	-	-	-	-	-
Contact	Interaction with physical contact	5	1	-	4	-	-	2	-	-	2	-	-
Contact & verbal[3]	Contact and verbal interactions	-	4	1	-	-	1	-	1	-	-	1	-
Mat. and contact	Material and contact interactions	1	-	-	-	-	-	2	-	-	1	-	-
Material, Contact & verbal [3]	Material, contact and verbal interactions	-	-	1	-	-	1	-	-	1	-	2	-
WORD 7													
No observations		(0)	(0)	(1)	(0)	(0)	(2)	(0)	(0)	(2)	(0)	(0)	(0)
Idio	Child is involved in activity by himself	43	23	23	48	[illegible]	6	60	22	49	47	8	5
Pat/Task	Child is doing as requested by adult	47	59	53	43	51	71	25	[illegible]	29	42	82	79
Distracted	Child is momentarily distracted	4	10	12	3	4	12	2	11	6	4	5	8
Workanother	Child is doing something else from what is expected	1	1	3	-	-	6	-	4	3	-	3	3
Disrupt	Child is disrupting class	-	-	-	-	-	-	1	1	-	-	-	-
LSWT[3]	Listening/watching	-	2	4	-	2	1	-	1	8	-	1	4
Transitional	Child is moving from one activity to another	5	5	3	6	2	2	6	3	3	6	1	1
Daydream[4]	Child is daydreaming	-	-	-	-	-	-	6	-	-	1	-	-
WORD 8													
No observations		(0)	(1)	(21)	(0)	(1)	(27)	(0)	(1)	(11)	(0)	(0)	(20)
Fantasy	Child is role playing	8	8	3	11	12	1	15	4	3	8	1	-
Diverg	Child is behaving divergently	19	8	10	16	10	[illegible]	20	26	37	16	12	3
Converg	Child is behaving convergently	39	56	41	41	[illegible]	58	29	47	30	48	72	64
Housekeep	Child is performing socially useful task	13	2	4	13	3	1	6	4	2	8	4	1
Kinest	Child is engaged in large motor activity	6	5	3	7	1	-	12	1	-	7	-	1
Social	Child is doing something else	15	20	11	12	19	9	10	17	17	13	11	11
WORD 9													
No observations		(96)	(96)	(98)	(97)	(98)	(99)	(97)	(98)	(96)	(97)	(99)	(98)
Positive	Child is expressing positive feeling	4	4	2	3	2	[illegible]	3	2	4	3	1	2
Negative	Child is expressing negative feeling	-	-	-	-	-	-	-	-	-	-	-	-
WORD 10													
No observations		(0)	(1)	(2)	(0)	(1)	(2)	(0)	(0)	(2)	(0)	(1)	(0)
TSTR[4]	Activity is teacher structured	52	-	-	42	-	-	26	-	-	45	-	-
TSTR (Closed)[3]	Teacher has all of class under her control	-	55	42	-	48	79	-	34	3	-	85	89
TSTR(Mod op)[3]	Teacher set task - no close teacher control	-	26	31	-	8	17	-	27	18	-	[illegible]	11
TSTR(Open)[5]	Teacher allows choice from range of activities	-	-	6	-	-	-	-	-	13	-	-	-
CSTR	Activity is child structured	48	18	19	50	43	2	74	39	64	55	7	-

1 Observations expressed as percentages and rounded off. Blanks represent < 0.5%

2 No code

3 Coding used with Kindergarten and Year One data

4 Coding used only with Preschool data

5 Coding used only with Year One data

TABLE A-2: PROSE Context Observations Recorded in the Four Programs on Selected Sample of Children Expressed as Percentages[1]

Variables	Description of Variables	PROGRAMS											
		Cognitive			Competency			Contemporary			Behaviourist		
		P	K	Yr1	P	K	Yr1	P	K	Yr1	P	K	Yr1
CATEGORY 1	Major focus of activity												
	No score	(3)	(3)	(2)	(9)	(3)	(0)	(3)	(1)	(1)	(9)	(2)	(0)
	Free	60	26	19	74	42	3	83	40	64	57	9	-
	Instruct	37	64	75	17	52	96	14	51	35	34	70	100
	Routines	-	7	4	-	3	1	-	8	-	-	19	-
CATEGORY 2[2]	Curricula Activities												
	Language	4	20	32	9	11	22	4	8	13	8	12	22
	Writing	3	6	-	-	[illegible]	11	-	13	16	3	9	11
	Reading	1	11	14	3	14	30	-	17	11	4	36	33
	Number	1	3	4	2	15	[illegible]	-	13	8	[illegible]	6	19
	Social Science	-	3	1	-	-	-	-	1	-	-	2	-
	Science	-	1	2	1	2	-	-	2	2	-	-	-
	Drama	-	3	-	-	-	-	-	-	-	-	-	1
	Music/Dance	1	7	-	5	1	1	5	2	2	4	5	2
	Dramatic Play	10	6	1	13	10	1	15	4	13	2	2	-
	Craft	-	3	11	-	6	3	-	3	13	-	1	-
	Art	-	2	6	-	4	-	-	8	5	-	3	-
	Water/Wood	6	1	-	24	-	-	10	2	2	1	-	-
	Blocks	7	1	-	5	7	2	2	2	6	2	1	-
	Books	6	1	-	7	3	7	7	3	2	8	1	-
	Motor	1	7	8	12	2	-	10	1	-	18	2	6
	Routines	16	14	4	7	2	2	5	7	-	6	14	1
	Other	7	12	16	7	12	-	15	14	7	11	6	4
	Constructional	7	-	-	1	-	-	7	-	-	9	-	-
	Table Activities	18	-	-	10	-	-	10	-	-	9	-	-
	Creative Activities	10	-	-	4	-	-	17	-	-	9	-	-
	Nutrition	12	-	-	5	-	-	2	-	-	9	-	-
	Group	15	-	-	8	-	-	11	-	-	23	-	-
CATEGORY 3	Physical distance of child												
	Not used	(7)	(12)	(21)	(4)	(18)	(1)	(19)	(9)	(13)	(14)	(9)	(4)
	Next	16	5	3	10	5	3	13	3	7	9	3	3
	Mid	74	81	72	86	77	94	67	82	80	74	87	93
	Out	3	2	4	-	-	2	1	6	-	3	1	-
CATEGORY 4[2]	N of pupils in group												
1	(Not Used)	-	(93)	(78)	-	(84)	(87)	-	(89)	(75)	-	(96)	(89)
	Adult	1	1	3	2	1	1	6	2	2	4	1	-
	No adult	9	6	21	8	15	12	11	9	20	15	3	11
2	(Not Used)	-	(96)	(88)	-	(83)	(95)	-	(83)	(67)	-	(95)	(99)
	Adult	4	-	-	4	1	-	9	-	5	5	-	-
	No adult	12	4	12	7	16	5	19	17	28	13	5	1
3-5	(Not Used)	-	(86)	(94)	-	(77)	(94)	-	(65)	(58)	-	(95)	(97)
	Adult	39	2	5	23	6	-	14	5	7	13	-	-
	No adult	7	12	11	11	17	6	19	30	35	21	5	3
6+	(Not Used)	-	(44)	(71)	-	(93)	(82)	-	(88)	(96)	-	(78)	(94)
	Adult	24	42	18	29	6	6	12	9	-	12	19	6
	No adult	1	14	11	3	1	12	1	3	4	1	3	-
All	(Not Used)	-	(82)	(79)	-	(65)	(42)	-	(77)	(100)	-	(36)	(19)
	Adult	3	18	21	11	36	58	10	23	-	14	64	81
	No adult	-	-	-	-	-	-	-	-	-	-	-	-

TABLE A-2: PROSE Context Observations Recorded in the Four Programs on Selected Sample Children Expressed as Percentages[1]

Variables	Description of Variables	Cognitive P	Cognitive K	Cognitive Yr1	Competency P	Competency K	Competency Yr1	Contemporary P	Contemporary K	Contemporary Yr1	Behaviourist P	Behaviourist K	Behaviourist Yr1
CATEGORY 5[2] Role of Adults													
Positive[3]	(Not used)	-	(88)	(88)	-	(81)	(75)	-	(77)	(94)	-	(68)	(85)
	Teacher	-	11	10	-	18	25	-	21	4	-	32	15
	Aide	-	-	1	-	-	-	-	-	-	-	-	-
	Parent	-	1	1	-	1	-	-	2	2	-	-	-
Reinforce[3]	(Not used)	-	(100)	(99)	-	(97)	(100)	-	(95)	(100)	-	(87)	(84)
	Teacher	-	-	-	-	3	-	-	5	-	-	13	16
	Aide	-	-	-	-	-	-	-	-		-	-	-
	Parent	-	-	1	-	-	-	-	-	-	-	-	-
Instruct[3]	(Not used)	-	(62)	(82)	-	(74)	(79)	-	(79)	(95)	-	(72)	(80)
	Teacher	-	15	16	-	23	21	-	20	4	-	27	20
	Aide	-	-	1	-	-	-	-	-	-	-	1	-
	Parent	-	3	-	-	3	-	-	1	1	-	-	-
Show/Tell	(Not used)	(58)	(67)	(71)	(80)	(78)	(42)	(75)	(74)	(87)	(70)	(60)	(69)
	Teacher	26	28	29	15	22	58	15	22	11	27	40	31
	Aide	12	3	-	3	-	-	5	-	-	2	-	-
	Parent	4	2	-	2	-	-	5	3		1	-	-
List/Watch	(Not used)	(95)	(57)	(75)	(74)	(66)	(63)	(88)	(66)	(81)	(91)	(53)	(64)
	Teacher	1	38	24	14	27	37	4	32	15	4	46	36
	Aide	1	2	-	20	3	-	6	-	1	3	-	-
	Parent	4	3	1	-	4	-	2	2	3	2	1	-
Discuss	(Not used)	(51)	(84)	(95)	(64)	(94)	(96)	(72)	(94)	(97)	(76)	(87)	(92)
	Teacher	28	13	[illegible]	27	5	4	15	6	3	13	13	8
	Aide	14	2	[illegible]	9	-	-	8	-	-	11	-	-
	Parent	7	1	1	-	1	-	5	-	-	-	-	-
Question[3]	(Not used)	-	(70)	(82)	-	(82)	(54)	-	(76)	(92)	-	(70)	(83)
	Teacher	-	27	18	-	16	46	-	22	8	-	30	17
	Aide	-	1	-	-	-	-	-	-	-	-	-	-
	Parent	-	2	-	-	2	-	-	2	-	-	-	-
Lead	(Not Used)	(93)	-	(98)	(93)	-	(90)	(93)	-	(100)	(93)	-	(87)
	Teacher	2	-	2	5	-	10	5	-	-	5	-	13
	Aide	4	-	-	1	-	-	1	-	-	1	-	-
	Parent	1	-	-	1	-	-	1	-	-	1	-	-
Peer	(Not used)	(95)	(99)	(99)	(92)	(99)	(100)	(88)	(98)	(99)	(95)	(100)	(99)
	Teacher	2	1	-	6	1	-	4	2	1	1	-	1
	Aide	2	-	-	2	-	-	5	-	-	4	-	-
	Parent	1	-	1	-	-	-	3	-	-	-	-	-
Resource	(Not used)	(78)	(88)	(93)	(97)	(98)	(96)	(90)	(97)	(92)	(96)	(82)	(93)
	Teacher	13	12	7	2	2	4	2	3	6	1	18	7
	Aide	7	-	-	1	-	-	7	-	1	2	-	-
	Parent	2	-	-	-	-	-	1	-	1	1	-	-
Housekeep	(Not used)	(98)	(86)	(96)	(94)	(87)	(93)	(97)	(79)	(100)	(97)	(79)	(97)
	Teacher	1	6	1	5	9	7	2	20	-	-	18	2
	Aide	1	3	-	1	1	-	1	-	-	2	2	-
	Parent	-	5	3	-	3	-	-	1	-	1	1	1
Manage	(Not used)	(86)	(100)	(82)	(76)	(91)	(77)	(85)	(96)	(98)	(83)	[illegible]	(82)
	Teacher	8	-	19	17	7	23	10	4	1	13	[illegible]	18
	Aide	4	-	-	7	-	-	3	-	1	4	-	-
	Parent	2	-	-	-	2	-	2	-	-	-	-	-
Admin[3]	(Not used)	-	(69)	(99)	-	(66)	(99)	-	(76)	(100)	-	(55)	(100)
	Teacher	-	28	1	-	32	1	-	23	-		44	-
	Aide	-	2	-	-	1	-	-	-	-	-	-	-
	Parent	-	1	-	-	1	-	-	1	-	-	1	-
Distract[3]	(Not used)	-	(94)	(99)	-	(94)	(100)	-	(99)	[illegible]	-	(97)	(95)
	Teacher	-	6	1	-	6	-	-	1	1	-	3	5
	Aide	-	-	-	-	-	-	-	-	-	-	-	-
	Parent	-	-	-	-	-	-	-	-	-	-	-	-
Negative[3]	(Not used)	-	(95)	(100)	-	(97)	(100)	-	(96)	(100)	-	(97)	(100)
	Teacher	-	4	-	-	1	-	-	4	-	-	3	-
	Aide	-		-	-	2	-	-	-	-	-	-	-
	Parent	-	1	-	-	-	-		-	-	-	-	-
Individual Att.	(Not used)	(99)	(98)	(100)	(96)	(98)	(98)	(96)	(98)	(97)	(97)	(98)	(100)
	Teacher	-	2	-	4	2	2	[illegible]	2	2	2	2	-
	Aide	1	-	-	-	-	-	1	-	-	1	-	-
	Parent	-	-	-	-	-		2	-	1	-	-	-

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[1] Observations expressed as percentages and rounded [illegible]. Blanks represent <0,5%

[2] May be multiply scored

[3] Coding used only with Kindergarten and Year One data

Table A-3 : Scott's Coefficient Intra-observer Reliabilities Using PROSE over Three Days on the Same Videotaped Example

Observer	Day 1	Day 2	Day 3
A	.94	.94	.95
B	.90	.93	.96
C	.84	.88	.95
D	.93	.93	.96

TABLE A-4 : Inter-observer reliabilities by PROSE categories across all programs using Cohen's Kappa

Observers	Occasions	Categories			
		Adult-Child	Child-Child	Child Alone	Context
A & B	1	.93	.97	.91	.76
	2	.91	.87	.92	.84
	3	.87	.90	.94	.89
	4	.88	.91	.91	.86
A & C	1	.84	.94	.90	.89
	2	.73	.90	.88	.94
	3	.82	.96	.87	.93
	4	.86	.89	.86	.90
A & D	1	.91	.69	.86	.91
	2	.78	.76	[illegible]	.91
	3	.85	.86	[illegible]	.91
	4	.73	.91	.91	.89
B & C	1	.82	.93	.94	.88
	2	.82	.90	.84	[illegible]
	3	.88	.89	.93	.90
	4	.81	.89	.90	.88
B & D	1	.75	.86	.91	.87
	2	.69	.91	.95	.88
	3	.83	.88	.87	.82
	4	.84	.86	.89	.86
C & D	1	.78	.79	.90	[illegible]
	2	.83	.78	.93	.94
	3	.81	.80	.92	.91
	4	.87	.84	.92	.97

TABLE A-7: Eigen Values, Relative Percentage of Discriminating Power Associated with each Discriminant Function and Wilks Lambda for Each PROSE Statement Data Set

Data Set	Discriminant Function	Eigen Value	Canonical Correlation	Relative Percentage	Wilks Lambda	Chi Square Significance
Preschool					.24	$p < .000$
	1	1.08	.72	56	.50	$p < .000$
	2	.60	.61	31	.50	$p < .000$
	3	.26	.45	13		
Kindergarten					.09	$p < .000$
	1	1.71	.79	45	.24	$p < .000$
	2	1.21	.74	32	.54	$p < .000$
	3	.86	.68	23		
Year One					.05	$p < .000$
	1	7.47	.94	85	.38	$p < .000$
	2	.84	.68	10	.70	$p < .134$
	3	.44	.55	5		

TABLE A : Eigen Values, Relative Percentage of Discriminating Power Associated with Each Discriminant Function and Wilks Lambda for Each PROSE Context Data Set.

Data Set	Discriminant Function	Eigen Value	Canonical Correlation	Relative Percentage	Wilks Lambda	Chi Square Significance
Preschool					.66	p <.000
	1	.21	.42	49	.81	p <.000
	2	.16	.37	37	.94	p <.004
	3	.07	.25	14		
Kindergarten					.53	p <.000
	1	.37	.52	52	.73	p <.000
	2	.26	.46	36	.92	p <.006
	3	.08	.28	12		
Year One					.26	p <.000
	1	1.39	.76	72	.62	p <.000
		.33	.50	17	.83	p <.000
	3	.21	.4[illegible]	11		

TABLE A-9: Standardised Discriminant Function Coefficients for Functions Derived from the PROSE Statement Data Sets[a]

Variables	Standardised Discriminant Function Coefficients								
	Preschool			Kindergarten			Year One		
	Function 1	Function 2	Function 3	Function 1	Function 2	Function 3	Function 1	Function 2	Function 3
Word 1									
Star			.43					-.33	-.40
Part		.92	.44		.32	-.48	-.57	-1.69	-1.06
Word 2									
Teacher	-.68	-.51	-.78	-.67	-.41	.96	.52	1.20	.71
Aide	-.30	-.36	-.70						
Other				-.47				.36	
Word 3									
Positive									
Reinforce				.31				.35	
Permissive									
Instruct									-.40
Show/Tell		-.71							
List/Watch		-.36							
Discuss									
Question									
Peer									
Lead				.35					
Resource				.46					
Manage									
Word 4									
Init			.37		-.75	-.83			
Coop	.31	1.75	1.48	-.32	-1.72	-1.62		-.66	-.37
Word 5									
Init		-.37	-.32	.31					
Coop	-.37	-2.34	-1.38		2.00	1.36	-.30	.38	
Word 6									
Verbal									
Non Verbal									
Material									
Material&Verbal		.44							
Word 7									
Idio	-.73	-1.27	.47	-.44	1.95	.51		.69	-.39
Pat/Task		-.97	.88	.61	2.07	1.39		.36	-.40
Distracted		-.39			-.62			-.31	
Workanother					.38	.61		.34	.34
LSWT					.37				-.43
Transitional					.40				-.49
Word 8									
Fantasy									
Diverg		-.69		.40	-.42				-.39
Converg			-.47	.45	-.59	-.49			
Housekeep								-.42	-.36
Kinest									
Social									
Word 10									
TSTR					-1.95		.89		
TSTR(modop)				-.33	-1.97			-.59	
CSTR	-.49		.33	-.58	-2.13	.81			
Percentage of Cases Correctly Classified		69			86			85	

[a] Only coefficients above ±.30 are shown.

TABLE A-10: Standardised Discriminant Function Coefficients for Functions Derived from the PROSE Context Data Set[a]

Variables	Standardised Discriminant Function Coefficients								
	Preschool			Kindergarten			Year One		
	Function 1	Function 2	Function 3	Function 1	Function 2	Function 3	Function 1	Function 2	Function 3
Category I									
Free/Instructional						-.50	.46	.34	.40
Category 2									
Curric Activities I					-.42		-.37		.55
Curric Activities II									
Curric Activities III									
Category III									
next/mid/out	-.33					-.53			-.48
Category 4									
Attentive/non attentive	-.45		.45						
Excited/quiet	-.40	-.43	-.40						
Busy/idle			-.41						
Category 5									
One	.80	-.33		-.36				.39	-.89
Two	.96	-.32	.54	-.54			-.44	.34	-.91
3 - 5	.98	-.45		-.45	-.33	-.32	-.49	.30	-.94
6+		-.31		.55				.72	.59
All		-.50	.30	-.30	.59		.55		.76
Category 6									
Show	.31						.56	.48	-.31
Tell	.34								
Lead									
Discuss									
Peer		-.31	.54						
Manage									
Resource	.37	.47							
Housekeep				-.33					
Individual Attention									
LSWT	-.31								
No Contact									
Percentage of Cases Correctly Classified		46			51			66	

[a] Only coefficients exceeding ± .30 are reported.

APPENDIX B

PERCENTAGES OF MODE AND FUNCTION OBSERVATIONS RECORDED BY TEACHER LANGUAGES INSTRUMENT (T.L.I.)

TABLE B-2 Teacher Language Instrument - Percentages of Observations Recorded in Function Categories

	Programs							
	Cognitive		Competency		Contemporary		Behaviourist	
	P*	Yr1**	P	Yr1	P	Yr1	P	Yr1
REGULATORY								
Motivating	20.56	8.63	16.83	7.83	14.93	6.31	23.78	11.74
Instructing	12.71	14.09	14.98	12.82	8.22	9.47	14.05	11.67
Control	11.53	8.30	12.34	22.22	17.98	19.29	9.81	15.03
Total	44.80	31.02	44.25	42.87	41.13	35.07	47.64	38.64
HEURISTIC								
Evaluative	32.00	12.80	31.53	13.39	25.52	8.53	24.52	4.59
Knowledge	5.65	16.38	9.40	15.81	7.64	15.58	8.31	9.16
Total	37.65	29.18	40.93	29.20	33.16	24.11	32.83	13.75
SOCIAL								
Social	6.20	14.69	5.79	12.11	13.83	22.63	9.40	11.60
Personal	7.60	8.95	6.78	9.12	6.96	10.02	6.26	6.58
Imagine	-	-	0.76	-	0.94	-	-	-
Total	13.80	23.64	13.33	21.23	21.73	32.65	15.66	18.18
ADMINISTRATIVE	0.55	0.67	-	0.28	0.17	0.56	-	3.01
RESOURCE	3.45	16.24	2.26	6.41	3.81	7.61	3.27	24.42

P* = Preschool Year
Yr1** = Year One

APPENDIX C

KUDER-RICHARDSON 20 RELIABILITY COEFFICIENTS OF MEASURES USED IN THE STUDY

A. Preschool		KR20
P.S.I.		.89
Perception	- Visual	.74
	- Auditory	.79
Reading	- Pre-Reading	.80
Language	- Vocabulary	.79
	- Imitation	.82
	- Comprehension	.61
	- Production	.63

B. Kindergarten		KR20
Boehm		.86
P.P.V.T.		.87
Murphy-Durvell Pre-Reading		.83
Circus Maths		.79
Social Knowledge		.86

C. Year One		KR20
P.P.V.T.		.89
Spelling		.81
Circus Maths		.85
Neale Reading	- Accuracy	.80
	- Comprehension	.88
Social Knowledge		.85

APPENDIX D

STATISTICS ASSOCIATED WITH CHAPTER 8

D-1 Means and Standard Deviations on Preschool Post-test Scores for Preschool and Non-Preschool Groups.

D-2 Multivariate and Univariate Analyses of Variance and Covariance on Preschool Post-test Measures for Preschool and Non-Preschool Groups.

D-3 N of Groups Used in Supplementary Analyses on Entry to Kindergarten.

D-4 Multivariate and Univariate Analyses of Variance between Preschool and Non-Preschool Groups on Measures administered at entry to Kindergarten.

D-5 Means and Standard Deviations on Kindergarten end of Year Measures - Preschool and Non-Preschool Groups.

D-6 Multivariate and Univariate Analysis of Variance on Kindergarten end-of-year Measures - Preschool and Non-Preschool Groups.

D-7 Means and Standard Deviations on Measures given at the end of Year One to Preschool/Non-Preschool Groups.

D-8 Multivariate and Univariate Analyses of Variance on Year One Measures for Preschool/Non-Preschool Groups.

D-9 Means and Standard Deviations of Kindergarten and Year One Measures for Preschool Children enrolled in Experimental and Comparison Groups.

D-10 Multivariate and Univariate Analyses of Variance - Kindergarten and Year One Comparisons between Preschool Children enrolled in Experimental and Comparison Groups.

D-11 Means and Standard Deviations of Kindergarten and Year One Measures for Preschool and Non-Preschool Children enrolled in Experimental Classes.

D-12 Multivariate and Univariate Analyses of Variance - Kindergarten and Year One Comparisons between Preschool and Non-Preschool Children enrolled in Experimental Classes.

D-13 Posttest Means and Standard Deviations of Preschool, Kindergarten and Year One Children enrolled in the Different Programs (Experimental Groups).

D-14 Multivariate and Univariate Analyses of Variance on Preschool Results among Different Programs (Experimental Groups).

D-15 Multivariate and Univariate Analyses of Variances on Kindergarten Results among Different Programs (Experimental Groups)

D-16 Multivariate and Univariate Analyses of Variance on Year One Results among Different Programs (Experimental Groups).

Table D-1

Means and Standard Deviations on Preschool Post-Test Scores for Preschool and Non-Preschool Groups.

	Preschool						Non-Preschool					
	Male			Female			Male			Female		
Measures	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
General												
P.S.I.	115	24.4	4.5	110	25.6	4.6	16	26.2	2.2	23	24.1	4.7
Perception												
Visual	115	12.4	2.0	110	12.7	2.10	[illegible]	12.8	1.8	23	12.3	1.7
Auditory	113	20.8	2.4	110	21.0	[illegible]	16	21.2	1.8	23	21.0	2.0
Reading												
Prereading	34	14.5	3.4	36	15.9	4.7	15	15.2	4.1	10	13.5	2.7
Language												
Vocabulary	[illegible]	28.8	5.1	110	29.2	5.6	[illegible]	29.9	3.2	23	28.4	5.1
Syntax												
Imitation	41	18.0	2.5	46	18.3	1.8	3	17.0	3.6	10	17.6	3.2
Comprehension	41	13.8	2.7	46	14.1	2.9	3	14.0	3.0	10	14.6	2.5
Production	41	11.3	3.1	46	12.4	3.2	3	10.7	2.9	10	11.8	3.2

Table D-

Multivariate and Univariate Analyses of Variance and Covariance on Preschool Post-test Measures for Preschool and Non-Preschool Groups

1. P.S.I., Visual Perception,. Vocabulary

a) Multivariate analysis of variance

Effect	Roots	df hyp.	df error	F	p less than	R
Preschool/Non-Preschool x Sex	1 through 1	3.0	258.0	1.649	.179	.137
Preschool/Non-Preschool	1 through 1	3.0	258.0	.019	.997	.015
Sex	1 through 1	3.0	258.0	.915	.434	.103

b) Univariate analysis of variance

Effect	Measure	df	Mean Square	F value	P less than
Prechool/Non-Preschool	P.S.I.	1,260	.08	.003	.956
	Visual Perception	1,360	.14	.032	.857
	Vocabulary	1,260	.08	.002	.962
Sex	P.S.I.	1,260	1.64	.060	.806
	Visual Perception	1,260	3.51	.835	.362
	Vocabulary	1,260	1.64	.060	.806

Table [illegible] Contd.

2. Pre-Reading
Analysis of variance

Effect	df	Mean Square	F Value	p less than
Preschool/Non-Preschool x Sex	1,100	57.02	3.741	.056
Preschool/Non-Preschool	1,100	29.33	1.439	.233
Sex	1,100	4.52	.297	.587

3. Auditory Perception
Analysis of covariance (Pre-test Auditory Perception Scores used as covariate)

Effect	df	Mean Square	F value	p less than
Preschool/Non-Preschool x Sex	1,259	1.068	.409	.523
Preschool/Non-Preschool	1,259	7.690	2.947	.087
Sex	1,259	.000	.000	.998

Table D-2 Contd.

4. Language - Syntax

a) Multivariate analysis of variance

Effect	Roots	df hyp	df error	F	p less than	R
Preschool/Non-Preschool x Sex	1 through 1	3	94	.018	.997	.024
Preschool/Non-Preschool	1 through 1	3	94	.625	.601	.140
Sex	1 through 1	3	94	.968	.411	.173

b) Univariate analysis of variance

Effect	Measure	df	Mean Square	F value	p less than
Preschool/Non-Preschool	Imitation	1,96	5.53	1.058	.306
	Comprehension	1,96	2.78	.360	.550
	Production	1,96	1.10	.112	.739
Sex	Imitation	1,96	2.66	.508	.478
	Comprehension	1,96	2.65	.343	.559
	Production	1,96	29.25	2.965	.088

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* The order of presentation of results on these tables reflects the varying numbers tested on each measure. The multivariate analysis of variance program used to perform these analyses would not permit varying numbers to be entered into the same analysis.

TABLE A-5: Varimax Rotated Factor Matrix for PROSE Statement Variables over Three Years [a]

Variables	Factor 1			Factor 2			Factor 3			Factor 4		
	P[b]	K	YRI	P	K	YRI	P	K	YRI	P	K	YRI
Part	.70	.90	.72	.41		.58						
Teacher	.53	.89	.74			.58						
Other					.60	-.40						.47
Show/Tell	.41					.42						
List/Watch			.41									
Question		.41										
Coop (Word 4)	-.77	-.60	-.54			-.44	.43		.42		.45	-.46
Coop (Word 5)	-.86	-.63	-.52			-.41	.48		.46		.44	-.41
Verbal	.35	.38	.79	.39	.47		.68					
Material + Verbal			-.47	.41	-.58		.57	-.55	-.63			
Idio	-.74	-.69		.40		-.81				.40		
Pat/Task	.75	.82				.83						
Fantasy		-.39										
Diverg		-.42	-.36	.37		-.65						
Converg	.44	.72				.77						
Positive		.40										
TSTR	.56	.88	.61	-.59		.65				-.46		
CSTR	-.57	-.78		.60		-.80				.47		
Percentage of Explained Variance	23.1	20.7	24.4	10.6	8.9	6.5	9.2	6.1	5.7	7.2	5.3	5.2

[a] Only variables loading >.35 on any one factor are reported.
Subsequent factors reported low loadings and are not interpretable.
Appendix Table A-1 describes variables

[b] P = Preschool, K = Kindergarten, YRI - Year One Classes

TABLE A-6: Varimax Rotated Factor Matrix for PROSE Context Variables over Three Years [a]

	Factor 1			Factor 2			Factor 3			Factor 4		
Variable	P [b]	K	YRI	P	K	YRI	P	K	YRI	P	K	YRI
Free/Instructional	.40	.52	.59									
Attentive/Non-attentive				.54						.42		
Busy/Idle				.61								
Size of Group - 1						-.85						
- 2		-.37	-.43				-.38	-.56	-.74		.51	
- 3-5		-.4[illegible]	-.42			.63	.93	.80	.53			
6+											-.38	-.75
All		.52	.76		-.85							
Show/Tell	.56	.55	.56									
Discuss	.53	.39										
Manage	.44											
Instruct		.51										
Question		.59	.43									
Percentage of Explained Variance	12.9	19.7	16.8	8.5	9.7	8.8	6.6	7.6	8.0	6.1	6.9	7.3

[a] Only variables loading ≥.35 on any one factor are reported.

Appendix Table A-2 describes variables

[b] P = Preschool, K = Kindergarten, YRI = Year One Classes

Table D-3

N of Groups Used in Supplementary Analyses on Entry to Kindergarten

	Program				
	Cognitive	Competency	Contemporary	Behaviourist	Home-Based
Preschool	12	12	12	12	12
Non Preschool	12	9	10	12	12

Table D-4

Multivariate and Univariate Analyses of Variance between Preschool and Non-Preschool Groups on Measures administered at entry to Kindergarten

a) Multivariate analysis of variance

Effect	Roots	df hyp	df error	F	p less than	R
Programs/Preschool/Non-Preschool	1-4	16	321.4	1.178	.284	.361
	2-4	9	279.6	.411	.929	.159
	3-4	4	212.0	.242	.915	.093
	4-4	1	106.5	.053	.819	.022
Programs	1-4	16	321.4	.946	.516	.287
	2-4	9	279.6	.650	.753	.202
	3-4	4	212.0	.352	.842	.102
	4-4	1	106.5	.296	.588	.053
Preschool/Non-Preschool	1-1	4	105.0	7.386	.001	.469

b) Univariate analysis of variance

Variable	df	Mean Square	F value	p Less than	Discriminant Function Coefficient
Vocabulary	1,108	627.48	22.591	.001	.562
Mathematics	1,108	162.87	14.736	.001	.009
Boehm	1,108	525.37	15.466	.001	.070
Prereading	1,108	284.32	21.812	.001	.557

Table D-5

Means and Standard Deviations on Kindergarten end of Year Measures - Preschool and Non-Preschool Groups

Measures	Preschool				Non-Preschool			
	Male		Female		Male		Female	
	X	SD	X	SD	X	SD	X	SD
General								
Boehm	37.7	5.1	38.6	6.0	36.3	6.8	35.7	5.5
Reading								
Murphy-Durrell Pre-Reading	51.6	13.7	54.2	14.7	49.3	15.2	47.3	12.9
Language								
P.P.V.T.	53.7	6.3	52.4	7.0	53.1	7.5	50.2	8.8
Mathematics								
Circus Maths	17.2	1.9	17.3	2.6	16.9	2.7	16.2	2.8
Social Knowledge	26.7	3.0	26.7	3.6	26.8	3.4	26.3	3.1

Table D-6

Multivariate and Univariate Analysis of Variance on Kindergarten end-of-year measures - Preschool and Non-preschool groups

a) Multivariate analysis of variance

Effect	Roots	df hyp.	df error	F	p less than	R
Preschool/Non-Preschool x Sex	1 through 1	5.0	274.0	.545	.742	.099
Preschool/Non-Preschool	1 through 1	5.0	274.0	3.562	.004	.247
Sex	1 through 1	5.0	274.0	2.275	.047	.200

b) Univariate analysis of variance

Effect	Measure	df	Mean Square	F	p less than	Discriminant Function Coefficient
Sex						
	Boehm	1,278	5.12	.151	.698	.87
	M-D Pre-Reading	1,278	25.26	.126	.723	.42
	P.P.V.T.	1,278	279.98	5.183	.024	.08
	Circus Maths	1,278	5.01	.952	.333	.27
	Social Knowledge	1,278	2.27	.211	.646	-.93
Preschool/ Non-Preschool						
	Boehm	1,278	322.11	9.502	.002	-.88
	M-D Pre-Reading	1,278	1491.45	7.439	.007	-.31
	P.P.V.T.	1,278	135.58	2.510	.114	1.07
	Circus Maths	1,278	35.15	5.659	.018	.53
	Social Knowledge	1,278	1.74	.161	.688	-.01

Table D-7

Means and Standard Deviations on Measures given at the end of Year One to Preschool/Non-Preschool Groups

Measures		Preschool				Non-Preschool			
		Male (N=84)		Female (N=85)		Male (N=87)		Female (N=59)	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Reading									
Neale	Accuracy	9.9	9.2	15.4	10.1	10.8	12.3	11.7	9.7
	Comprehension	2.6	2.9	4.0	3.2	3.1	3.9	2.5	1.9
Language									
P.P.V.T.		58.0	6.2	56.8	6.1	57.9	7.2	55.8	5.3
Spelling		17.4	9.9	22.2	8.5	17.4	10.6	19.0	9.3
Syntax		17.8	5.3	18.3	5.3	18.1	5.6	17.2	5.3
Mathematics									
Circus Maths		37.7	8.7	38.6	8.9	37.7	8.9	34.7	7.6
Social Knowledge		23.8	5.4	22.4	5.7	23.9	5.7	20.9	4.9

Table D-8

Multivariate and Univariate Analyses of Variance on Year One Measures for Preschool/Non-Preschool Groups

a) Multivariate Analysis of Variance

Effect	Roots	df hyp.	df error	F	p less than	R
Preschool/ Non-Preschool x Sex	1 through 1	7	285	1.298	.252	.176
Preschool/ Non-Preschool	1 through 1	7	285	.484	.685	.129
Sex	1 through 1	7	285	5.953	.001	.357

b) Univariate Analysis of Variance

Effect	Measure		df	Mean Square	F	p less than	Discrimin. Function Coefficient
Preschool/ Non-Preschool							
	Reading	-Accuracy	1,291	148.97	1.398	.238	-.761
		-Comprehen.	1,291	20.87	2.191	.140	.739
	Language	-P.P.V.T.	1,291	13.37	.345	.557	-.187
		-Spelling	1,291	207.01	2.275	.133	.478
		-Syntax	1,291	9.82	.343	.559	-.340
	Mathematics		1,291	241.86	3.488	.063	.881
	Social Knowledge		1,291	27.60	.923	.338	-.037
Sex							
	Reading	-Accuracy	1,291	911.38	8.550	.004	-.326
		-Comprehen.	1,291	22.84	2.398	.123	-.003
	Language	-P.P.V.T.	1,291	171.72	4.431	.036	.135
		-Spelling	1,291	866.86	9.526	.002	-.766
		-Syntax	1,291	.399	.014	.907	-.218
	Mathematics		1,291	38.39	.557	.456	.377
	Social Knowledge		1,291	307.90	10.293	.001	.829

Table D-9

Means and Standard Deviations of Kindergarten and Year One Measures for Preschool Children Enrolled in Experimental and Comparison Groups.

Measures	EXPERIMENTAL				COMPARISON			
	Males		Females		Males		Females	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Kindergarten	(N=44)		(N=38)		(N=36)		(N=43)	
Boehm	38.7	4.3	39.8	5.7	36.4	5.7	37.5	6.1
P.P.V.T.	53.6	6.1	52.8	6.6	53.9	6.6	52.0	7.4
Murphy-Durrell	53.0	11.5	57.0	14.4	49.9	16.0	51.7	14.7
Circus Maths	17.3	1.8	17.7	2.3	17.1	2.1	17.0	2.9
Social Knowledge	27.0	2.9	27.4	3.1	26.3	3.1	26.2	3.9
Year One	(N=43)		(N=30)		(N=41)		(N=47)	
P.P.V.T.	58.3	6.0	58.9	5.6	57.6	6.4	55.2	6.0
Spelling	16.4	3.5	21.2	9.1	18.6	10.2	23.0	8.0
Circus Maths	37.5	8.8	38.8	8.4	37.9	8.7	38.5	7.8
Reading - Accuracy	7.9	7.6	14.1	10.6	11.9	10.4	16.5	9.6
Comprehension	2.4	2.5	3.8	3.2	2.9	3.4	4.2	3.2
Syntax	18.6	4.6	18.8	5.2	16.9	5.8	17.9	5.3
Social Knowledge	24.0	4.6	23.0	4.8	23.6	6.1	22.0	6.3

Table D-10

Multivariate and Univariate Analysis of Variance - Kindergarten and Year One Comparisons between Preschool Children enrolled in Experimental and Comparison Groups

a) Multivariate Analysis of Variance

Effect	df Hyp	df Error	F value	p less than	R
Kindergarten					
Exp x Comparison x Sex	5.0	153.0	.238	.945	.088
Exp x Comparison	5.0	153.0	1.938	.091	.244
Sex	5.0	153.0	1.388	.232	.208
Year One					
Exp x Comparison x Sex	7.0	159.0	.936	.480	.199
Exp x Comparison	7.0	159.0	2.541	.017	.317
Sex	7.0	159.0	4.304	.001	.349

Table D-10Contd.

b) Univariate Analysis of Variance for Selected Effects

	df	Mean Square	F value	p less than
Kindergarten				
Exp x Comparison				
Boehm	1,157	213.36	7.142	.008
P.P.V.T.	1,157	2.29	0.051	.821
Murphy-Durrell	1,157	705.67	3.530	.062
Circus Maths	1,157	8.48	1.611	.206
Social Knowledge	1,157	36.45	3.388	.068
Sex				
Boehm	1,157	34.83	1.166	.282
P.P.V.T.	1,157	72.50	1.623	.205
Murphy Durrell	1,157	261.30	1.307	.255
Circus Maths	1,157	.28	.054	.817
Social Knowledge	1,157	.18	.016	.899
Year One				
Exp x Comparison				
P.P.V.T.	1,165	202.51	5.619	.019
Spelling	1,165	171.88	2.034	.156
Circus Maths	1,165	.00	.000	.996
Reading - Accuracy	1,165	418.65	4.576	.034
Comprehension	1,165	9.61	1.014	.316
Syntax	1,165	68.61	2.489	.117
Social Knowledge	1,165	22.37	.726	.396
Sex				
P.P.V.T.	1,165	52.70	1.462	.228
Spelling	1,165	971.42	11.494	.001
Circus Maths	1,165	40.62	.576	.449
Reading - Accuracy	1,165	1281.41	14.00	.001
Comprehension	1,165	79.17	8.35	.004
Syntax	1,165	13.61	.494	.483
Social Knowledge	1,165	79.79	2.588	.110

Table D-11

Means and Standard Deviations of Kindergarten and Year One Measures for Preschool and Non-Preschool Children Enrolled in Experimental Classes.

	Males		Females		Males		Females	
Measures	$\bar{\bar{X}}$	SD	$\bar{\bar{X}}$	SD	$\bar{\bar{X}}$	SD	$\bar{\bar{X}}$	SD
Kindergarten								
Boehm	38.7	4.3	39.8	5.7	30.3	7.3	34.6	5.2
P.P.V.T.	53.6	6.1	52.8	6.6	50.7	5.0	47.3	7.4
Murphy-Durrell	53.0	11.5	57.0	14.4	48.7	12.8	46.0	12.6
Circus Maths	17.3	1.8	17.7	2.3	16.7	3.3	15.8	3.0
Social Knowledge	27.0	2.9	27.4	3.1	26.6	3.4	25.7	3.1
Year One								
P.P.V.T.	58.3	6.0	58.9	5.6	57.1	6.5	55.6	5.3
Spelling	16.4	9.5	21.2	9.1	16.3	11.0	18.2	9.0
Circus Maths	37.5	8.8	38.8	8.4	38.0	7.7	35.0	7.6
Reading - Accuracy	8.0	7.6	14.1	10.6	9.3	11.4	11.4	10.3
Comprehension	2.4	2.5	3.8	3.2	2.6	3.1	2.4	1.9
Syntax	18.6	4.6	18.9	5.2	18.2	5.2	17.4	4.9
Social Knowledge	24.0	4.7	23.0	4.8	23.5	5.8	20.2	4.6

Table D-12

Multivariate and Univariate Analyses of Variance - Kindergarten and Year One Comparisons between Preschool and Non-Preschool Children enrolled in Experimental Classes.

a) Multivariate Analysis of Variance

Effect	df hyp	df error	F value	p less than	R
Kindergarten					
Preschool/Non-Preschool x Sex	5	133	.599	.701	.148
Preschool/Non-Preschool	5	133	4.023	.001	.392
Sex	5	133	1.121	.353	.201
Year One					
Preschool/Non-Preschool x Sex	7	135	.741	.637	.192
Preschool/Non-Preschool	7	135	1.105	.364	.233
Sex	7	135	3.337	.003	.384

Table D-12 Cont'd.

b) Univariate Analysis of Variance

Measures	df	Mean Square	F value	p less than
Kindergarten				
Preschool x Non-Preschool				
Boehm	1,137	477.77	15.058	.001
P.P.V.T.	1,137	581.06	14.633	.001
Murphy-Durrell	1,137	1885.67	11.422	.001
Circus Maths	1,137	45.88	6.939	.009
Social Knowledge	1,137	33.44	3.425	.067
Sex				
Boehm	1,137	.60	.019	.891
P.P.V.T.	1,137	129.25	3.250	.074
Murphy-Durrell	1,137	40.81	.247	.620
Circus Maths	1,137	1.24	.187	.666
Social Knowledge	1,137	1.08	.110	.741
Year One				
Preschool x Non-Preschool				
P.P.V.T.	1,141	167.30	4.814	.030
Spelling	1,141	77.05	.827	.365
Circus Maths	1,141	88.14	1.312	.254
Reading - Accuracy	1,141	12.73	.129	.720
Comprehension	1,141	11.98	1.600	.208
Syntax	1,141	29.61	1.208	.274
Social Knowledge	1,141	90.42	3.688	.057
Sex				
P.P.V.T.	1,141	4.28	.123	.726
Spelling	1,141	449.33	4.823	.030
Circus Maths	1,141	15.34	.228	.633
Reading - Accuracy	1,141	682.22	6.937	.009
Comprehension	1,141	16.04	2.263	.135
Syntax	1,141	1.79	.073	.788
Social Knowledge	1,141	131.84	6.194	.014

Table 9-13

Posttest Means and Standard Deviations of Preschool, Kindergarten and Year One Children Enrolled in the Different Programs

(Experimental Groups)

Measures	Cognitive		Competency		Contemporary		Behaviourist		Home-Based	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
PRESCHOOL										
General										
Preschool Inventory	25.4	4.5	24.7	5.0	24.8	4.6	25.2	4.4	24.9	4.7
Perception										
Visual	11.3	2.0	12.9	2.0	12.6	2.0	13.0	1.9	13.7	1.7
Auditory	20.7	2.1	21.5	1.3	20.7	1.9	20.9	2.6	20.9	2.7
Language										
Vocabulary	27.3	5.4	30.7	4.5	27.1	5.0	31.3	3.8	30.4	4.8
Imitation	18.8	1.1	18.5	1.8	18.2	2.2	18.8	1.5	17.7	2.8
Comprehension	13.4	2.2	14.1	2.9	14.0	3.0	14.2	2.6	12.6	2.6
Production	11.4	3.0	13.0	2.3	11.5	4.5	11.8	2.6	11.6	3.0
Pre Reading	15.1	4.2	15.2	3.5	15.0	5.0	15.8	4.1	-	-
Mathematics										
Seriation I	2.9	0.4	2.8	0.4	2.9	0.4	2.7	0.6	2.5	0.8
Seriation II	24.1	4.8	24.1	2.5	19.3	4.3	21.8	4.6	23.1	5.1
Seriation III	8.7	2.3	10.0	1.5	9.1	2.8	7.8	2.9	10.1	2.4
Numeration I	4.0	1.4	3.7	1.0	3.9	1.2	3.6	1.2	3.3	1.2
Numeration II	1.3	0.5	1.4	0.5	1.3	0.8	1.5	0.3	1.3	0.6
Numeration III	2.4	0.6	2.4	0.8	1.9	0.8	2.4	1.0	2.1	0.9
Conservation	0.5	0.8	0.0	0.9	0.4	0.8	0.6	0.9	0.9	0.8
Spatial	8.5	1.1	8.1	2.6	8.3	1.8	8.2	1.3	7.3	2.0
KINDERGARTEN										
General										
Boehm	38.0	5.6	36.3	6.0	39.0	5.1	37.3	5.3		
Reading										
Murphy-Durrell	53.0	12.7	43.4	10.5	63.6	10.8	50.7	11.7		
Language										
P.P.V.T.	51.8	5.9	49.5	7.1	56.3	6.3	50.1	6.0		
Mathematics										
Circus Maths	16.9	2.7	16.4	3.1	17.9	1.6	17.0	2.4		
Social Knowledge	30.6	3.0	30.4	2.6	29.4	2.5	30.5	3.2		

Table D-13 contd.

YEAR ONE								
Reading								
Accuracy	8.3	11.1	9.1	6.8	8.8	9.7	12.8	9.2
Comprehension	1.8	2.4	2.6	2.2	3.5	3.2	3.6	2.8
Language								
P.P.V.T.	57.5	4.9	58.2	5.6	55.6	7.1	57.4	6.5
Spelling	15.0	9.6	19.1	9.7	16.1	8.7	22.1	8.1
Syntax	18.5	5.2	18.0	4.3	19.4	4.8	18.0	4.7
Mathematics	36.1	8.2	40.2	9.0	36.4	6.7	36.7	7.0
Social Knowledge	22.1	5.3	24.2	5.7	24.8	4.9	21.9	3.9

Table D-14

Multivariate and Univariate Analyses of Variance on Preschool Results among Different Programs

(Experimental Groups)

a) VOCABULARY, VISUAL PERCEPTION, AND P.S.I.

Multivariate Analysis

Effect	Roots	df hyp	df error	F value	p less than	R
Program x Sex	1 through 1	12	563.837	.966	.481	.189
Program	1 through 1	12	563.837	6.575	.001	.495
	2 through 3	6	520.037	2.343	.030	.248
Sex	1 through 1	3	213.00	1.616	.187	.149

Univariate Analysis

(i) Program

Measure	df	Mean Square	F values	p less than
Vocabulary	4,215	189.445	7.545	.001
Visual Perception	4,215	38.465	10.158	.001
P.S.I.	4,215	4.146	.198	.939

(ii) Sex

Measure	df	Mean Square	F value	p less than
Vocabulary	9,215	102.872	4.097	.000
Visual Perception	9,215	19.064	5.035	.000
P.S.I.	9,215	27.749	1.325	.225

Table D-14 Contd.

b) AUDITORY PERCEPTION - ANALYSIS OF COVARIANCE

Effect	df	Mean Square	F value	p less than
Program x Sex	4	0.323	.117	.977
Program	4	1.152	.416	.797
Sex	1	0.113	.041	.840

c) PRE-READING

Effect	df	Mean Square	F value	p less than
Program x Sex	3,62	42.026	2.513	.067
Program	3,62	2.033	.122	.947
Sex	1,62	36.565	2.186	.144

d) LANGUAGE

Effect	Roots	df hyp	df error	F value	p less than
Program x Sex	1-3	15	237.810	.885	.582
Program	1-3	15	237.810	1.777	.039
Sex	1-1	3	86.000	.866	.462

Univariate Analysis
ii) Program

Variable	df	Mean Square	F value	p less than
Imitation	4,82	4.186	2.419	.055
Comprehension	4,82	7.211	2.792	.032
Production	4,82	10.195	.713	.585

ii) Sex

Variable	df	Mean Square	F value	p less than
Imitation	1,86	2.656	.508	.478
Comprehension	1,86	2.649	.343	.559
Production	1,86	29.253	2.965	.088

Table D-14 Contd.

e) MATHEMATICS

Effect	Roots	df hyp	df error	F value	p less
Program x Sex	1-4	32	211.801	1.327	.124
Program	1-4	32	211.801	1.753	.011
Sex	1-1	8	57.000	1.582	.151

Univariate Analysis

Variable	df	Mean Square	F value	p less than
Seriation I	4,64	.346	.999	.415
Seriation II	4,64	53.065	2.747	.036
Seriation III	4,64	11.606	2.130	.087
Numeration I	4,64	1.279	.868	.488
Numeration II	4,64	.116	.383	.820
Numeration III	4,64	.635	.893	.474
Conservation	4,64	.859	1.235	.305
Spatial	4,64	4.040	1.203	.318

Table D-15

Multivariate and Univariate Analyses of Variances on Kindergarten Results among Different Programs (Experimental Groups)

Effect	Roots	df hyp	df error	F value	p less than	R
Program x Sex	1-3	15	356.514	1.451	.121	.312
Program	1-3	15	356.514	3.364	.001	.531
Sex	1-1	5	129.000	1.093	.367	.202

Univariate Analysis

Variable	df	Mean Square	F value	p less than
Program				
Boehm	3,133	65.661	1.948	.125
Murphy-Durrell	3,133	1705.113	12.190	.001
P.P.V.T.	3,133	227.374	5.931	.001
Circus Maths	3,133	11.249	1.657	.179
Social Knowledge	3,133	20.226	2.066	.108
Sex				
Boehm	1,133	.602	.018	.894
Murphy-Durrell	1,133	40.810	.292	.590
P.P.V.T.	1,133	129.253	3.372	.069
Circus Maths	1,133	1.239	.183	.670
Social Knowledge	1,133	1.077	.110	.741

Table D-15 Contd.

e) MATHEMATICS

Effect	Roots	df hyp	df error	F value	p less
Program x Sex	1-4	32	211.801	1.327	.124
Program	1-4	32	211.801	1.753	.011
Sex	1-1	8	57.000	1.582	.151

Univariate Analysis

Variable	df	Mean Square	F value	p less than
Seriation I	4,64	.346	.999	.415
Seriation II	4,64	53.065	2.747	.036
Seriation III	4,64	11.606	2.130	.087
Numeration I	4,64	1.279	.868	.488
Numeration II	4,64	.116	.383	.820
Numeration III	4,64	.635	.893	.474
Conservation	4,64	.859	1.235	.305
Spatial	4,64	4.040	1.203	.318

Table D-16
Multivariate and Univariate Analyses of Variance on Year One Results among Different Programs
(Experimental Groups)

Effect	Roots	df hyp	df error	F value	p less than	R
Program x Sex	1-3	21	376.711	1.413	.108	.355
Program	1-3	21	376.711	3.067	.001	.467
Sex	1-1	7	131.000	3.480	.002	.396

Univariate Analysis

Variable	df	Mean Square	F value	p less than
Program				
Reading				
Accuracy	3,137	333.597	3.788	.012
Comprehension	3,137	31.143	4.659	.004
Mathematics	3,137	89.579	1.358	.258
Language				
P.P.V.T.	3,137	2.660	.076	.973
Spelling	3.137	394.831	4.796	.003
Syntax	3,137	17.133	.716	.554
Social Knowledge	3,137	49.337	2.070	.107
Sex				
Reading				
Accuracy	1,137	682.220	7.746	.006
Comprehension	1,137	16.940	2.534	.114
Mathematics	1,137	15.337	.233	.630
Language				
P.P.V.T.	1,137	4.285	.123	.726
Spelling	1,137	449.326	5.458	.021
Syntax	1,137	1.785	.075	.785
Social Knowledge	1,137	151.839	6.372	.013

Explorations in Early Childhood Education is an important contribution to the existing knowledge about the provision of programs for disadvantaged children in Australia. The issues raised in the Mt Druitt Early Childhood Project are of equal interest to administrators, teachers, and educators as well as the community at large. The Project was an action program in early childhood education, although the design contained some elements of a research character: five early childhood education programs were implemented, each with a different theoretical basis; teaching methods and materials were developed with a specific relevance to each curriculum; and the monitoring and evaluation procedures for the activities and programs were carefully chosen.

The study has shown that it is possible to develop, implement, and evaluate a number of different early childhood programs to assist educationally disadvantaged children within the public school setting.

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